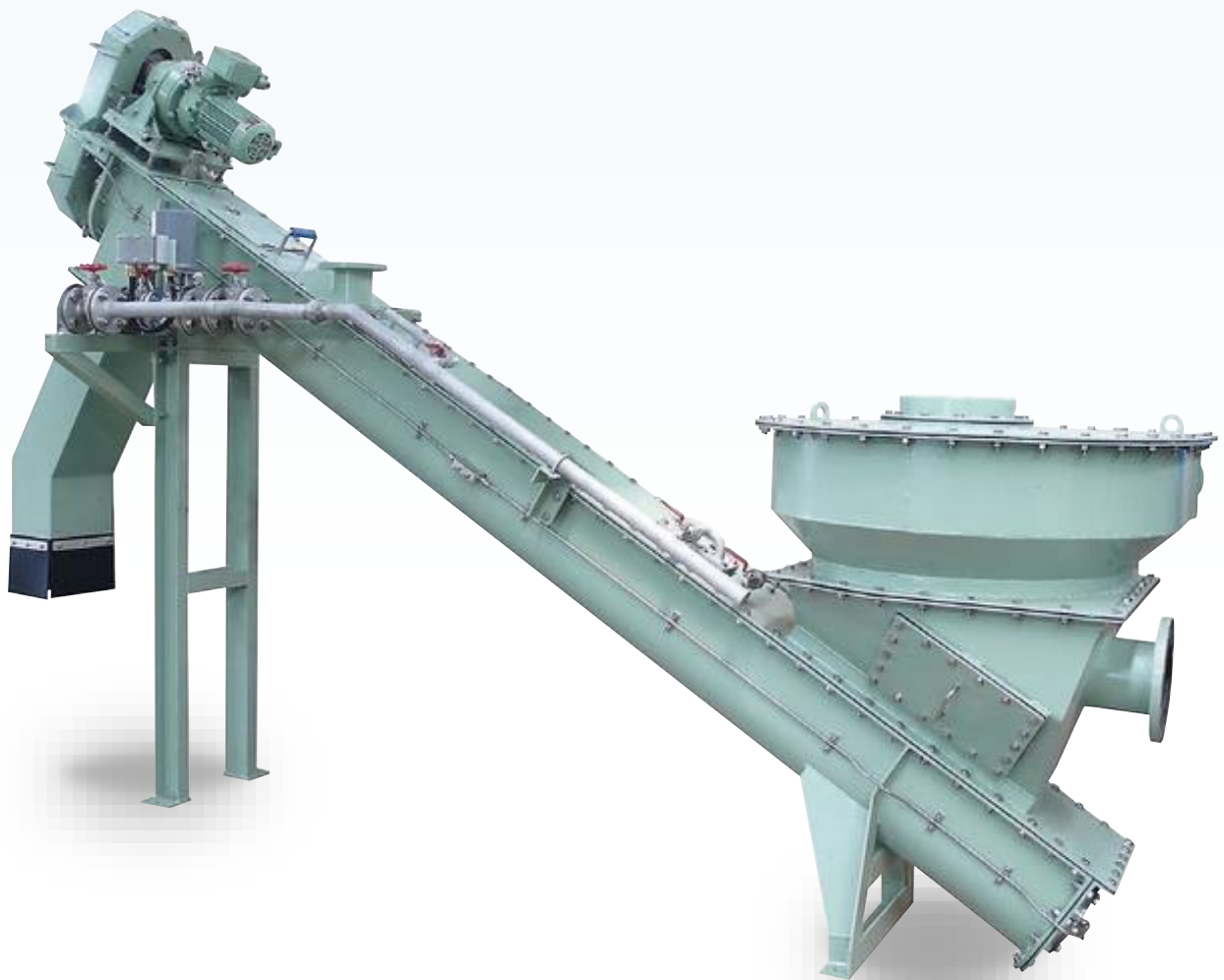


Spiral Flow Grit Separator

# ESCARGOT

For reliable grit separation with original spiral separation tank design



*Maezawa Industries, Inc.*

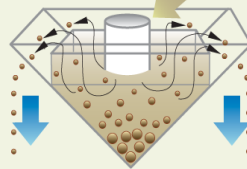
In recent years, grit chambers at wastewater treatment plants and pumping stations have increasingly adopted “pipe transfer systems” using jet pump-type grit conveyors or sand pumps in combination with grit separators, due to their compact design and low odor emissions. Conventional grit separators often struggle with resuspension and short-circuiting of incoming grit, making it difficult to collect fine particles effectively.

To address these issues, Maezawa Industries has developed the “Escargot” Spiral Flow Grit Separator, featuring a spiral screw system that enhances sedimentation efficiency. By separating the retention tank and the separation unit, it prevents resuspension of collected grit, achieving high separation performance in a compact, energy-efficient design.

### Issues

- Problems with the conventional type
  - Low collection rate
  - Large installation space required
  - Maintenance operations are complicated due to blockages and other factors
  - Pump output increases with the additional required pressure (10m)

### Conventional grit separator



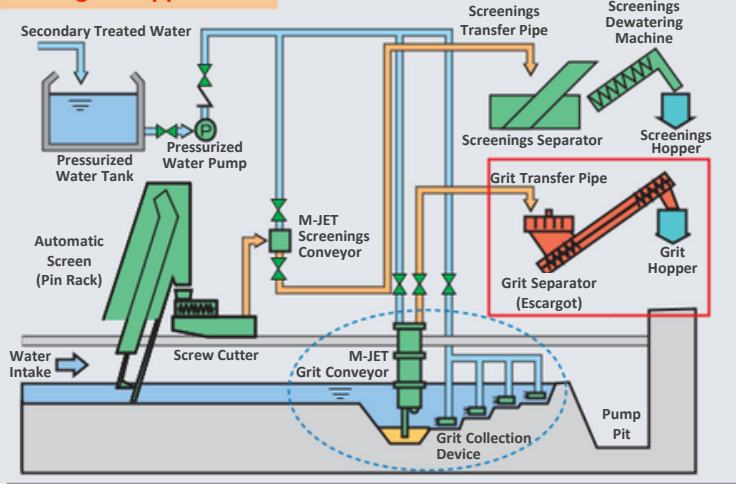
Short distance between the inlet and the outlet potentially causes “short-circuiting” of grit.

### Needs

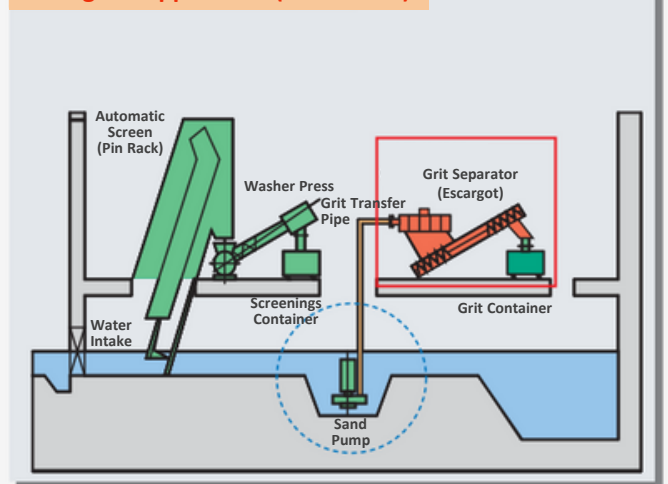
- Reliable grit separation
- Energy efficiency
- Utilization of limited space
- Reduced maintenance costs and workloads

## Applications

### Escargot's Application

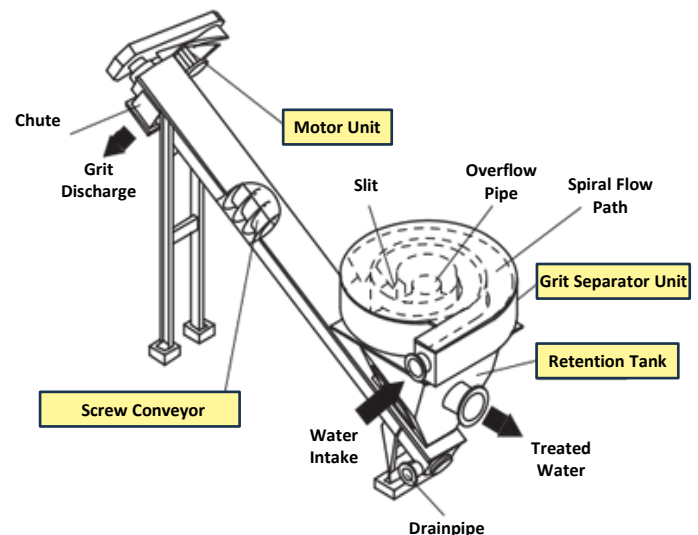


### Escargot's Application (small scale)



## Structure Overview

- Composed of components such as the grit separator unit, retention tank, motor unit, and screw conveyor.
- Water intake flows into the grit separator unit, which features a spiral flow path. Grit settles through slits located at the bottom.
- After grit separation, the treated water overflows from the center.
- Settled grit is temporarily stored in the retention tank, then conveyed and dewatered by a screw conveyor, and discharged from the chute section.
- An optional simple washer can be added to the screw discharge section for basic cleaning.
- To prevent slit clogging in the grit separator unit, influent should pass through a screen with openings of 30 mm or less.



## Key Features

### 1. Reliable Separation Performance

By designing the flow path in a spiral structure, a long flow path is accommodated within a compact space equal to or smaller than conventional models. This prevents short-circuiting of grit, creates an ideal sedimentation flow, and enhances sedimentation efficiency.

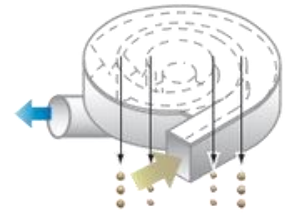
#### Ideal Separator

(Sand Sedimentation Theory)



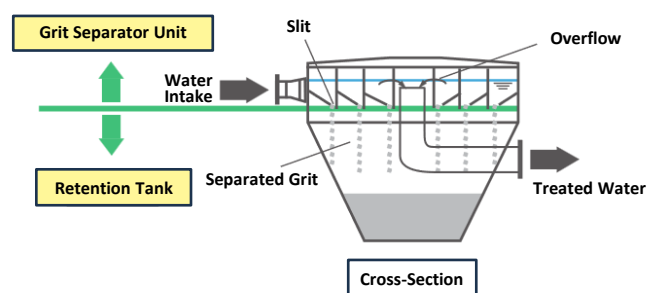
An ideal separator mimics natural sedimentation, requiring a long flow path between the inflow and outflow to allow suspended particles like sand to settle efficiently.

#### Spiral-Type Grit Separator Unit



Compact design achieved through spiral configuration.

A slit separates the grit separation unit from the retention tank, preventing resuspension of settled grit.



### 2. Power Saving

#### Energy-efficient Screw Conveyor

Temporary storage in the retention tank densifies the grit, enabling more efficient transport with a smaller screw and motor. This innovative design reduces energy consumption while maintaining reliable performance.

#### Energy-efficient Sand Pump

Because the cyclone's required pressure (approx. 0.1 MPa) is no longer necessary, the motor output for the sand pump can be reduced by about one level.

### 3. Lightweight & Small Footprint

Compared to conventional screw conveyors with separation tanks, this unit is lighter and more compact.

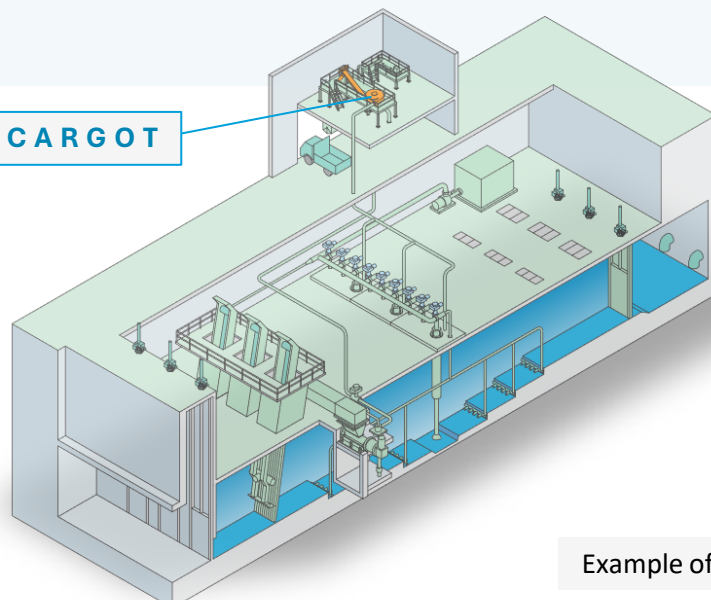
### 4. Cost Saving & Ease of Work

A smaller screw diameter reduces repair expenses, and unlike cyclone type, no maintenance is needed for blockages or similar issues.

## Applications

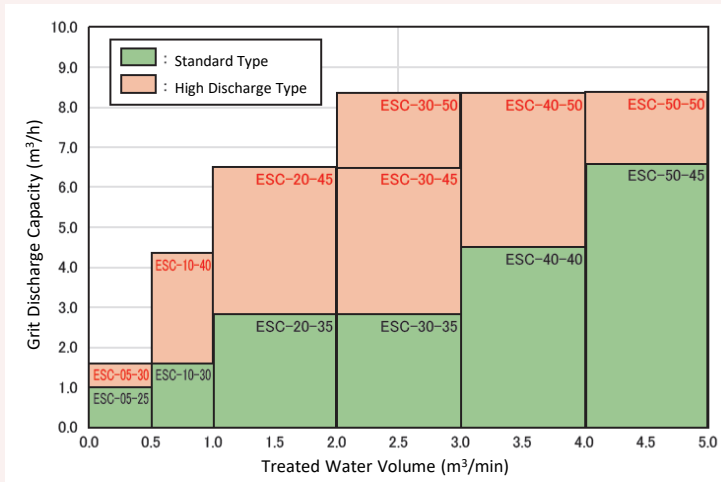
Separator for Grit Transfer via Pipeline  
(Jet Pump / Sand Pump)

ESCARGOT



Example of a Jet Pump

## Selection Diagram



\*Treatment capacity may vary depending on the characteristics of the grit.

\*\*For specifications outside the above range, please contact us separately.

## Model Selection Chart

### 1. Standard Type (Intermittent Feed)

Model	Treated Water Volume (m³/min)	Grit Discharge Capacity (m³/h)	Screw Diameter (mm)	Motor (kW)	Applicable Equipment
ESC-05-25	0.5	1.0	250	0.75	Sand Pump
ESC-10-30	1.0	1.7	300	1.5	
ESC-20-35	2.0	2.7	350	2.2	Sand Pump/Jet Pump
ESC-30-35	3.0	2.7	350	2.2	
ESC-40-40	4.0	4.3	400	3.7	Jet Pump
ESC-50-45	5.0	6.5	450	3.7	

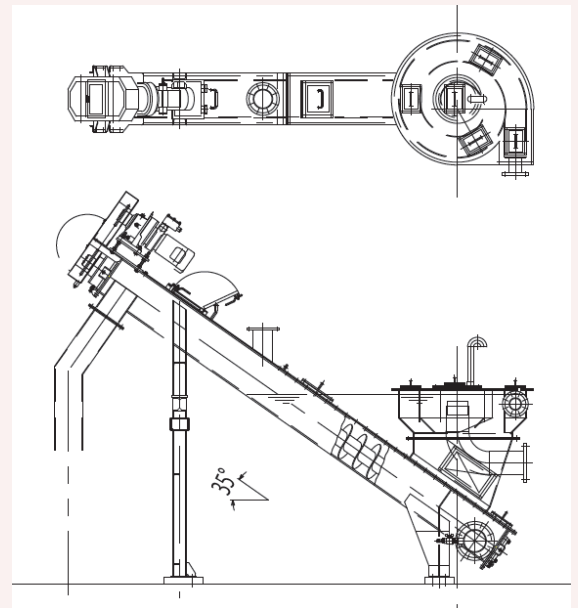
### 2. High Discharge Type (Continuous Feed)

Model	Treated Water Volume (m³/min)	Grit Discharge Capacity (m³/h)	Screw Diameter (mm)	Motor (kW)	Applicable Equipment
ESC-05-30	0.5	1.7	300	1.5	Sand Pump
ESC-10-40	1.0	4.3	400	2.2	
ESC-20-45	2.0	6.5	450	3.7	Sand Pump/Jet Pump
ESC-30-45	3.0	6.5	450	3.7	
ESC-30-50	3.0	8.4	500	5.5	
ESC-40-50	4.0	8.4	500	5.5	Jet Pump
ESC-50-50	5.0	8.4	500	5.5	

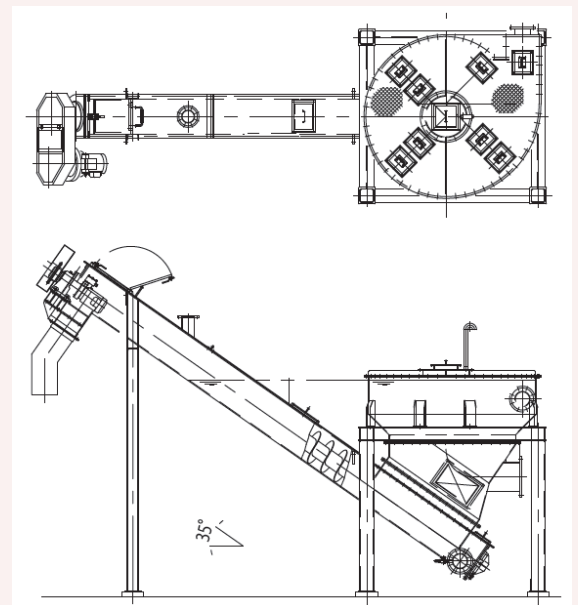
## Reference Diagram

\*For dimensions, please contact us.

### • ESC05



### • ESC10-ESC50



## Options

An optional simple washing device can also be installed at the discharge section.

Any information in this document is subject to change without notice.



**Maezawa Industries, Inc.**  
5-11, Naka-Cho, Kawaguchi-Shi, Saitama, 332-8556 JAPAN

International Business Dept.  
E-mail: intl@maezawa.co.jp TEL: +81-48-253-0061 FAX: +81-48-253-7563

