

FG and 2FG Spiral Classifier Technical Parameters and Model Selection Guide

High-Weir Spiral Classifier



A spiral classifier separates mineral slurry by particle settling velocity. Fine particles leave through the overflow, while settled coarse solids are lifted by the spiral for discharge or return to the ball mill.

MODEL RANGE

FG7.5-FG30

DOUBLE SPIRAL

2FG12-2FG30

SPIRAL DIAMETER

750-3,000 mm

OVERFLOW CAPACITY

65-1,785 t/24 h

RETURNED SAND

340-23,400 t/24 h

SPIRAL SPEED

2.0-10 r/min

TECHNICAL NOTE

Published capacities are nominal equipment ratings and do not guarantee a specific overflow particle size or classification performance.

FG and 2FG Technical Parameters

Table A - FG Single-Spiral Models

Model	Spiral Dia.	Tank Length	Speed	Returned Sand	Overflow	Main Drive	Lift Drive	Weight
FG7.5	750	5,500	6-10	340-570	65	3	Manual	2.7
FG10	1,000	6,500	5.0-8.0	675-1,080	110	4	Manual	4.43
FG12	1,200	6,500	5.0-8.0	1,170-1,870	155	5.5	1.5	8.7
FG15	1,500	8,400	4.0-6.0	1,830-2,740	235	7.5	2.2	12.5
FG20	2,000	8,400	4.0-6.0	3,240-5,400	400	11	2.8	20.5
FG24	2,400	9,210	3.6	4,650-7,450	580	15	3.0	25.6
FG30	3,000	12,500	3.2	11,625	890	22	4.0	37.7

Table B - 2FG Double-Spiral Models

Model	Spiral Dia.	Tank Length	Speed	Returned Sand	Overflow	Main Drive	Lift Drive	Weight
2FG12	1,200	6,500	5.0-8.0	2,340-3,740	310	5.5 x 2	1.5 x 2	14.0
2FG15	1,500	8,400	4.0-6.0	3,660-5,480	470	7.5 x 2	1.5 x 2	21.1
2FG20	2,000	8,400	3.0-5.5	7,780-11,880	800	11 x 2	2.8 x 2	36.5
2FG24	2,400	9,210	3.6	13,600	1,160	15 x 2	3 x 2	46.8
2FG30	3,000	12,500	2.0-3.2	14,600-23,400	1,785	22 x 2	4 x 2	73.0

Units: diameter and length in mm; speed in r/min; capacities in t/24 h; power in kW; weight in t.

Working Principle and Main Components

Realistic Process View



● Feed Slurry ● Settling Pool ● Fine Overflow ● Coarse Settling ● Returned Sand

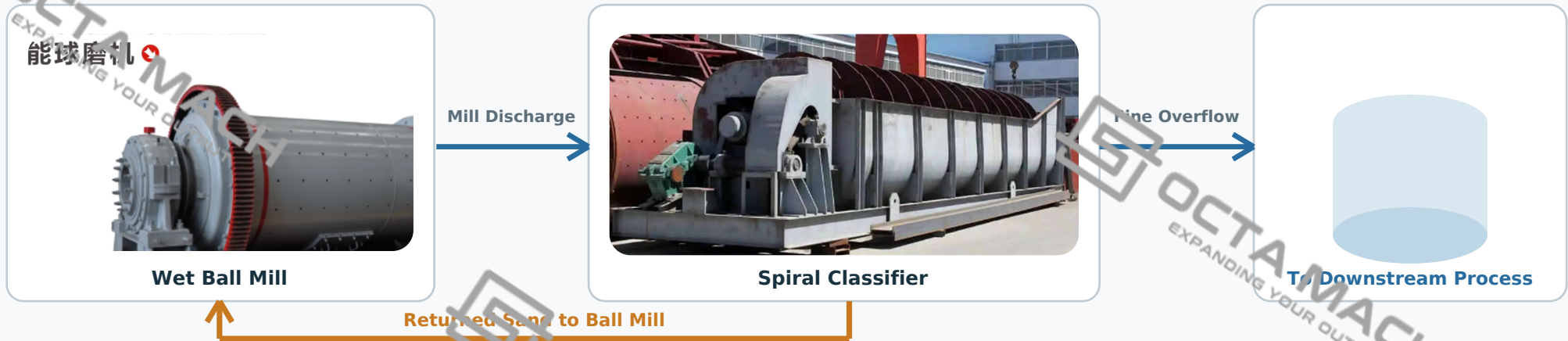
Main Components

- Inclined Classification Tank
- Spiral Assembly
- Main Drive
- Lifting Mechanism
- Overflow Weir
- Lower Bearing
- Support Frame

TECHNICAL NOTE

The classifier uses gravity sedimentation and mechanical lifting. It is not a spiral concentrator or spiral chute.

Closed-Circuit Grinding and Model Selection



Feed and Slurry Conditions

- Feed solids rate
- Slurry flow
- Particle-size distribution
- Pulp density

Overflow Duty

- Target overflow size
- Fine-solids load
- Hydraulic flow

Returned-Sand Duty

- Circulating load
- Settled coarse-solids load
- Conveying capacity

Plant Interfaces

- Ball mill discharge elevation
- Overflow launder elevation
- Foundation load
- Maintenance clearance

Final selection must consider both overflow duty and returned-sand conveying capacity.

Installation, Operating Variables and Checklist

Commissioning, operating control and maintenance points for FG and 2FG high-weir spiral classifiers

01

FOUNDATION AND LAYOUT

- ☐ Confirm tank slope and foundation elevation
- ☐ Verify support alignment before shaft rotation
- ☐ Provide lifting and maintenance clearance
- ☐ Check overflow and returned-sand elevations

02

OPERATING CONTROL

- ☐ Maintain a stable slurry feed rate
- ☐ Monitor pulp density and pool condition
- ☐ Check overflow for coarse-particle carryover
- ☐ Observe returned-sand discharge continuity
- ☐ Change one operating variable at a time

03

INSPECTION AND MAINTENANCE

- ☐ Inspect spiral-flight wear and shaft alignment
- ☐ Check lower-bearing lubrication and sealing
- ☐ Inspect reducer, coupling and drive fasteners
- ☐ Lift the spiral during an extended shutdown when required

INSTALLED CLASSIFIER - INSPECTION REFERENCE



Drive and Reducer

Tank and Spiral Zone

Returned-Sand End

OPERATING VARIABLES TO RECORD

Feed Rate

Hydraulic loading

Pulp Density

Settling behaviour

Spiral Speed

Bed transport

Overflow-Weir Height

Pool depth

Tank Slope

Residence and discharge

Returned-Sand Load

Spiral and drive duty

RESTART CONTROL: Confirm free spiral rotation before starting against any settled solids bed.