

# Spadana Flotation Cells

Enhanced performance | availability and stability





## ABOUT FMS

Fakoor Meghnatis Spadana's (FMS) wide range of solutions in mining, metal and recycling industries provides the best value for our customers. Since 1992, FMS has proved to be focused on making big difference to the market.

In mining, we supply our customers with a variety of equipment, services, and process knowledge; including flowsheet investigations and optimizations as well as different types of magnetic drum separators, flotation cells, high pressure grinding rolls (HPGRs), X-ray transmission sorters (XRTs), samplers, roller screens and feeders, etc.

In aggregates, we offer stationary and mobile cone crusher units, modular conveyors, vibrating screens and feeders, in addition to comprehensive maintenance and after sales services for all the offerings.

After 2 decades of evolution and development, we have become a leading supplier of mining equipment in ferrous and non-ferrous sectors.



## SP Flotation Cells

Relying on our combination of R&D activities, engineering and manufacturing capabilities, as well as services, we support our customers in the mining industries bringing success by sustainable development and productivity. We provide our customers with products, solutions and services based on technological excellence, experience and the highest safety standards.

The advanced design of Spadana flotation machine known as SP makes it a potential option for processing various ores in different capacities. SP includes a circular tank concept and combine the benefits of circular cells with the optimized features of the mechanism to establish the ideal conditions for maximize flotation operation for all roughing, cleaning and scavenging duties.

FMS can supply a variety of SP cells volumes required for modern ferrous as well as non-ferrous ore processing plants.

The mechanism design provides strong radial slurry pumping to the cell wall and gives powerful return flows to the underside of the impeller to minimize sanding. Besides, it is an optimized mechanism to give maximum slurry recirculation to the upper part of the impeller.



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## Type of Equipment

Spadana® flotation units are designed to last, with components and electrical equipment optimized for maximum operating procedure. The cells are easy to operate, low on power and air consumption, and allow for a modular layout. The wide range of cell sizes in various volumes enables a compact, economical, and efficient plant design without risk of short circuiting, even for high-tonnage operations.

FMS has established the capability of manufacturing advanced spadana® flotation cells including SP10 to SP160 with the volume of 10m<sup>3</sup> to 160m<sup>3</sup>, respectively).

## Advantages of SP-Flotation Cells

- Ease of installation and operation
- Improved metallurgical parameters
- Optimized manufacturing design
- Agile after sale services
- Low CAPEX and OPEX

## R&D Center for mineral processing

FMS Co. has owned a well-equipped mineral processing laboratory and pilot that is a subsidiary of FMS group's research and development (R&D) department. for performing different mineral processing studies in order to perform comprehensive flotation tests such as indirect flotation of iron ore for degrading the sulfur, phosphorus, silica and direct flotation tests for sulfide and oxide minerals of non-ferrous metals such as copper, lead, zinc, gold, and industrial minerals such as apatite, fluorite, etc.

Our R&D center and laboratories offer the following capabilities:

- Laboratory-scale testing
- Simulation of potential flowsheet options
- Bench and pilot scale runs

We also have developed an extensive knowledge of plant design and engineering, new product development, process automation, and the implementation of large-scale projects.





# Modern Concepts of SP Flotation Cells

## 1. Tank design features

- Circular tank concept with low level slurry entry and exit to minimize slurry short circuiting.
- Modular tank design to simplify construction, shipment and site installation.

## 2. Durable Rotor-Disperser Materials

The rotor blade and stator are molded from thick abrasion-resistant rubber. The elasticity and toughness of this material provides maximum protection against attrition, even in applications where the pulp contains excessive coarse or abrasive material.

## 3. Froth handling

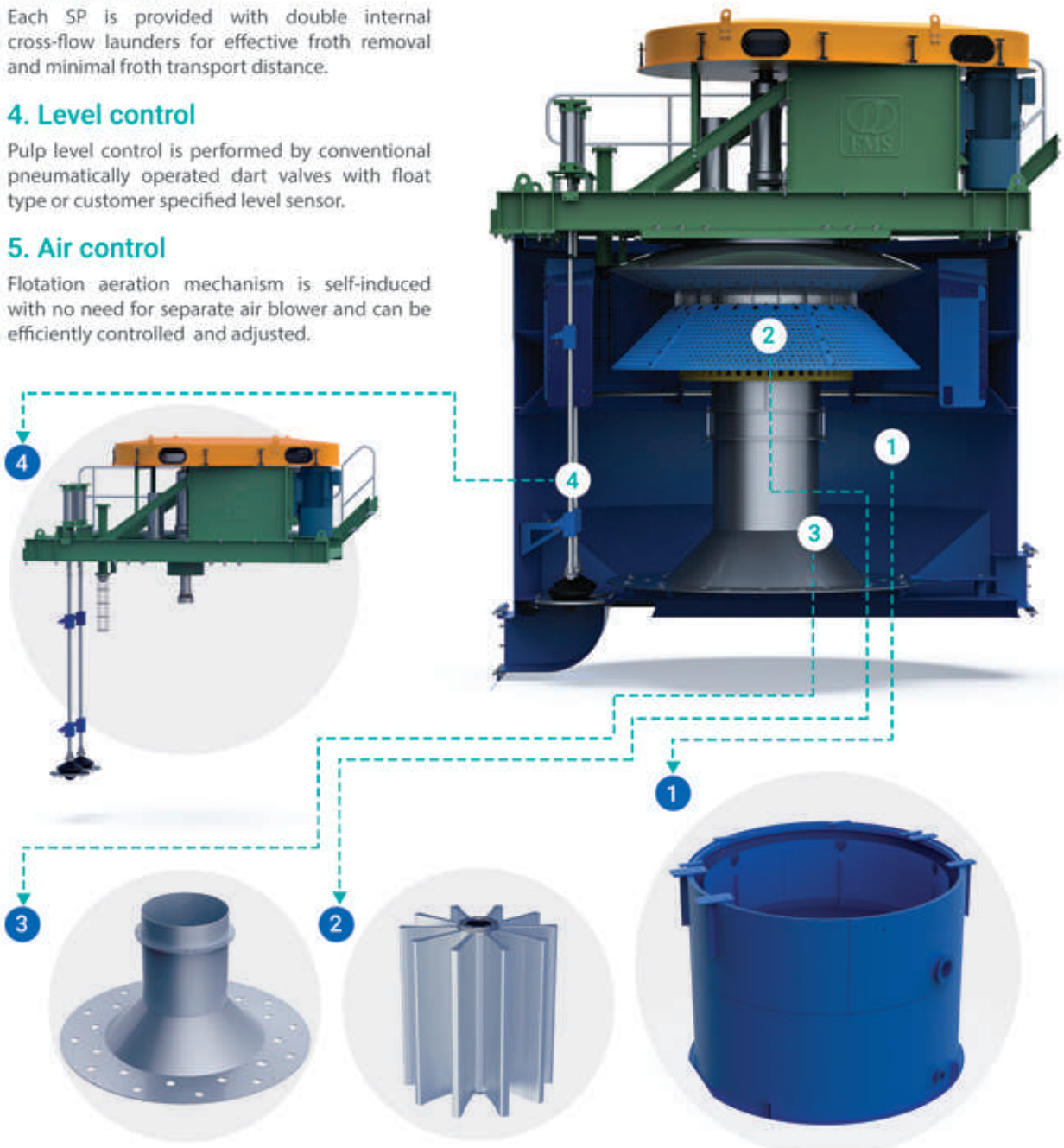
Each SP is provided with double internal cross-flow launders for effective froth removal and minimal froth transport distance.

## 4. Level control

Pulp level control is performed by conventional pneumatically operated dart valves with float type or customer specified level sensor.

## 5. Air control

Flotation aeration mechanism is self-induced with no need for separate air blower and can be efficiently controlled and adjusted.

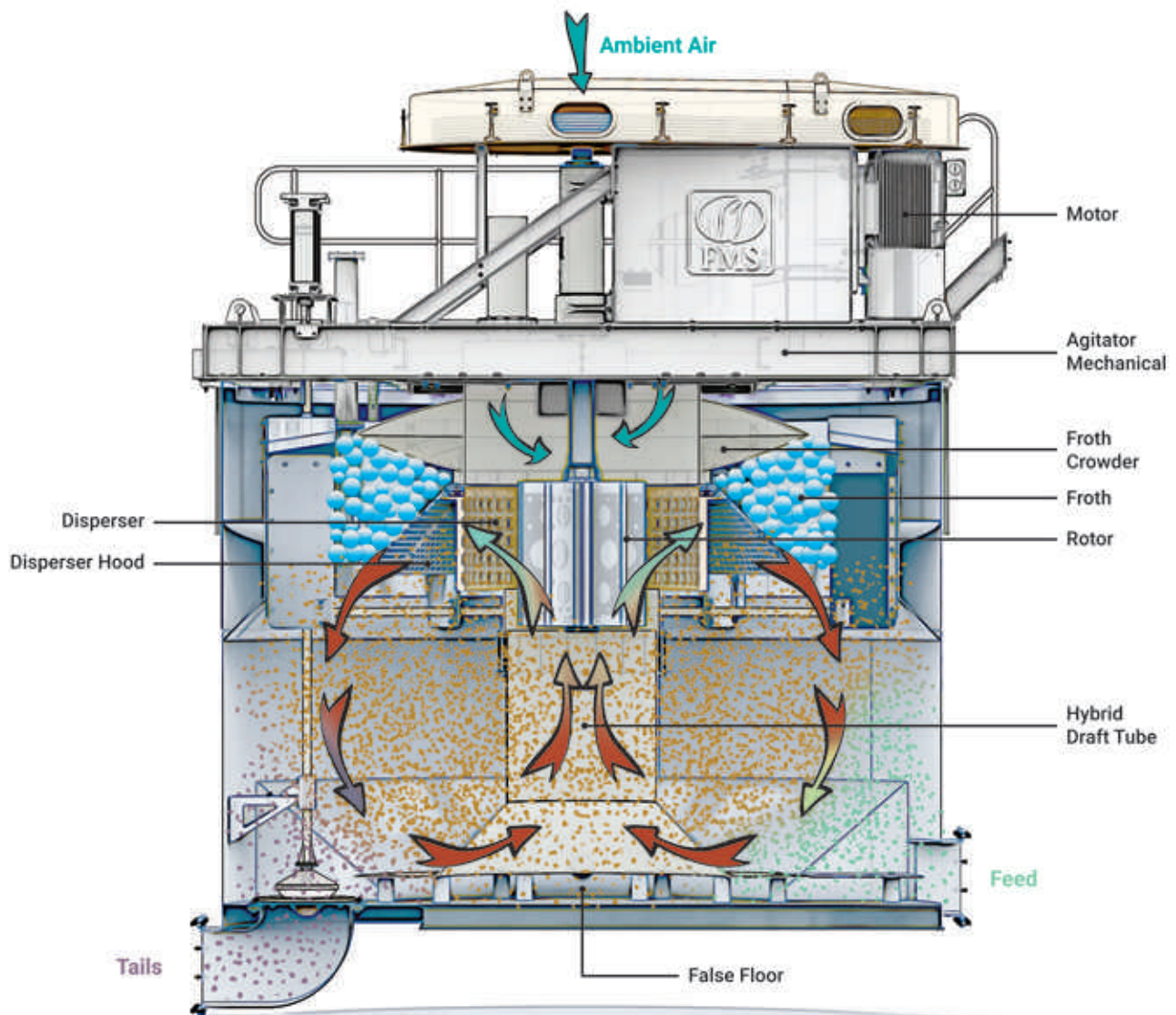


## SP Flotation Mechanism

The Spadana® air-induced mechanism has been well developed and approved in various projects . Its cast-iron bearing housing provides accurate shaft alignment under all loads and moments, ensuring long service life. Self-aspirated air flow circulation provides effective aeration, mechanical simplicity and capital expenditure.

The Spadana rotor is positioned higher in the flotation cell leading to the below advantages:

- Greater availability and performance sustainability
- Increased coarse particle recovery
- Positioning the rotor close to the top of the cell leading to less wear.
- Replacement of mechanisms can be carried out without shutting down or draining the row of cells.
- No blower and associated air piping is required.





## Online controlling

Advanced process control is considered for production of Spadana® flotation cells. We also provide and apply innovative solutions and field services in order to optimize the flotation circuits, and promote the metallurgical parameters.

Research and Technology Development teams at FMS have been constantly focused on stabilizing and promoting Spadana flotation cells performance. Besides, keeping recovery as well as providing availability and sustainability while monitoring and managing costs under control has been considered as a challenging milestone in ferrous and non-ferrous processing plants.

In this regard, establishing automation and developing remote intelligent control systems of flotation systems have been considered as a necessary tool for us in order to let our clients feel the real efficiency. FMS together with the most experienced R&D centers and laboratories worldwide has found a comprehensive development team for optimizing flotation intelligent circuits.



However, obtaining and controlling optimum recovery of valuable minerals is something that happens by knowledge and know-how. Designing a new flotation flowsheet, or choosing the right mechanisms for an existing process, requires experience and a deep understanding of minerals processing and metallurgy. Our solutions are generated by our experts specialized in minerals processing, mechanical engineering, metals production, and technology development.





## FLOTATION PROCESSES

Service is a cornerstone in FMS flotation projects

### Installation & Commissioning

FMS experienced and highly-trained experts will handle the installation with professionalism, adeptness and in accordance with local safety requirements.

### Advisory services

Prioritize the most cost-efficient ways in order to enhance sustainability, safety, and productivity based on in-depth information from equipment evaluations, inspections, studies and audits performed by FMS experts.

### Spare and wear parts

We are obligated to provide peace of mind with our spares that ensure the safety and functionality of your equipment.

### Maintenance services

Maintain your plant in sustainable working order and plan for the future with confidence with our comprehensive range of maintenance services. Our services range from basic equipment upkeep to full maintenance management and shutdown services.



We Help Our Customers Make Gem out of the Soil



We support you by:

- Equipment installation to commissioning and optimization.
- Supplying genuine quality of spare parts.
- A wide range of services and training from the initial steps.
- Comprehensive and agile assistance for proper selection of processing and mechanical parameters before and during the performance.
- Intelligent control systems.