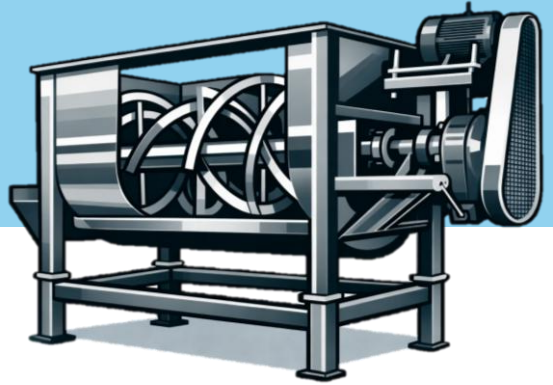


# HORIZONTAL MIXING SOLUTION FOR DRY & FREE-FLOWING MATERIALS

## RIBBON BLENDER



Ribbon Blenders are horizontal mixing machines designed for fast, uniform blending of dry powders, granules, and free-flowing solids. The dual helical ribbon configuration generates a balanced axial and radial flow pattern, ensuring consistent material movement across the entire trough volume. This design minimizes segregation and dead zones, resulting in repeatable batch quality even with varying bulk densities and particle sizes. Apexind Ribbon Blenders are engineered for robust mechanical performance and long service life. The shaft, ribbons, bearings, and drive assembly are designed to handle continuous industrial duty with predictable torque requirements. The open, accessible construction allows easy inspection, cleaning, and maintenance, making the equipment suitable for chemical, pharmaceutical, food, and specialty material applications where reliability and hygiene are critical.

### APPLICATION

Chemical powders, pharma intermediates, food ingredients, pigments, detergents, minerals, polymer additives.

### MATERIALS OF CONSTRUCTION

MS, SS304, SS316, SS316L. Contact and non-contact parts configurable separately

### TYPICAL CAPACITY RANGE

100 liters to 5,000 liters per batch

### DESIGN & CONSTRUCTION HIGHLIGHTS

- Double helical inner and outer ribbon design
- Horizontal U-shaped or W-shaped trough
- Optimized shaft and bearing arrangement for continuous duty
- Dust-tight construction with gasketed covers
- Bottom or side discharge options

### OPTIONAL FEATURES

- Spray nozzles for liquid addition
- Heating or cooling jacket
- Chopper for deagglomeration
- Load cells for batch weighing
- CIP-ready design
- Special lid opening mechanism

### INDUSTRIES SERVED

Pharmaceuticals, Chemicals, Food, Agrochemicals, Specialty Materials, Construction

### COMPLIANCES

Designed and fabricated in accordance with:

- ASME Standards (where applicable)
- GMP guidelines for pharmaceutical applications
- IS/ intl. standards for pressure-less vessels
- Client-specific requirements



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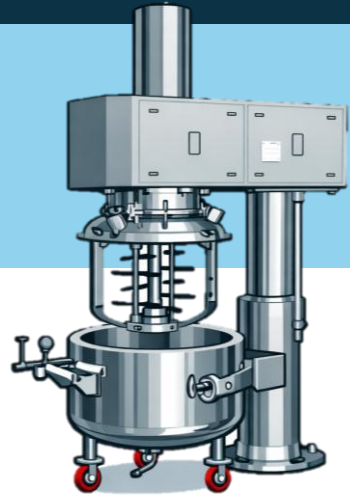
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# HIGH-TORQUE MIXING FOR HIGH-VISCOSITY PRODUCTS

## PLANETARY MIXER



Planetary Mixers are specifically developed for intensive mixing of high-viscosity, paste-like, and non-free-flowing materials that cannot be effectively processed using conventional agitators. The planetary motion causes the mixing blades to rotate around their own axis while simultaneously orbiting the vessel, ensuring complete coverage of the mixing zone without leaving unmixed pockets.

Apexind Planetary Mixers are built with heavy-duty gearboxes and rigid structural support to withstand high torque loads generated during processing. The design allows controlled mixing at low speeds, reducing air entrapment and heat generation. These mixers are widely used in applications requiring precise texture control, uniform dispersion, and repeatable product consistency across batches.

### APPLICATION

Ointments, creams, adhesives, sealants, resins, battery pastes, specialty chemicals.

### MATERIALS OF CONSTRUCTION

SS304, SS316, SS316L. Contact and non-contact parts configurable separately

### TYPICAL CAPACITY RANGE

10 liters to 2,000 liters

### DESIGN & CONSTRUCTION HIGHLIGHTS

- Planetary gear-driven mixing system
- Scraper blades for wall and bottom cleaning
- Heavy-duty gearbox and torque transmission
- Vacuum-tight construction option
- Tilting bowl or bottom discharge design

### OPTIONAL FEATURES

- Vacuum mixing
- Heating or cooling jacket
- Variable speed drives
- Quick-release mixing tools
- PLC-based control panel

### INDUSTRIES SERVED

Pharma, Cosmetics, Chemicals, Energy Storage, Specialty Manufacturing

### COMPLIANCES

Designed and fabricated in accordance with:

- ASME Standards (where applicable)
- GMP guidelines for pharmaceutical applications
- IS/ intl. standards for pressure-less vessels
- Client-specific requirements



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# INTEGRATED REACTION SYSTEMS WITH SAFE OPERATOR ACCESS

## PRESSURE & JACKETED VESSELS/ REACTORS/ AGITATORS



Apexind Pressure Vessels are designed as integrated process systems combining the pressure vessel, agitation system, & engineered access structures. The vessel design is customized to suit batch or semi-batch chemical processes, with careful consideration of operating pressure, temperature, agitation duty, & material compatibility. Platform layouts are developed to support safe & efficient operation, sampling, charging, and maintenance activities. The access structures, including platforms, staircases, ladders, & handrails, are structurally designed to comply with industrial safety standards while optimizing plant layout & operator movement. By delivering the pressure vessels and access system as a single engineered package, Apexind ensures proper interface alignment, reduced site modifications, & improved safety during operation & maintenance.

### APPLICATION

Chemical synthesis, pharma intermediates, polymers, resins, specialty reactions, solution preparation, slurry mixing, dissolution, blending, heating, cooling, crystallization, reaction, holding operations.

### MATERIALS OF CONSTRUCTION

MS, SS304, SS316, SS316L. Internal surface finish as per process requirement

### TYPICAL CAPACITY RANGE

100 liters to 10,000 liters

### DESIGN & CONSTRUCTION HIGHLIGHTS

- Vertical or horizontal tank configurations
- Integrated agitation systems
- Manways, nozzles, and instrumentation ports
- Custom-designed platforms with handrails & ladders
- Load-optimized structural supports
- Top or bottom-mounted agitators
- Propeller, turbine, anchor, or custom impellers
- Baffle integration for vortex control
- Jacketed or limpet coil heating
- Load cells for mass balance monitoring
- Nitrogen blanketing system
- CIP/SIP compatibility
- Safety relief system
- Mechanical seals

### INDUSTRIES SERVED

Pharma, Cosmetics, Chemicals, Petrochemicals, Specialty Chemicals, Food, Agrochemical, Paint and pigments

### COMPLIANCES

Designed and fabricated in accordance with:

- ASME Standards (where applicable)
- GMP guidelines for pharmaceutical applications
- IS/ intl. standards for pressure vessels
- Client-specific requirements



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# RELIABLE STORAGE FOR PROCESS CONTINUITY

## STORAGE TANKS (PROCESS / DAY / BUFFER)



Storage Tanks are critical components for maintaining process continuity and operational stability in batch and continuous plants. Apexind designs process, day, and buffer tanks to safely store liquids and slurries while preserving product integrity and hygiene. Tank geometry, orientation, and nozzle configuration are optimized based on material properties, flow requirements, and downstream equipment interfaces.

The tanks are engineered for ease of cleaning, complete drainage, and long-term corrosion resistance. Depending on process requirements, the tanks can be supplied with agitation, insulation, or instrumentation provisions. Apexind storage tanks are suitable for both utility services and critical process duties where reliability, cleanliness, and structural integrity are essential.

### APPLICATION

Raw material storage, intermediate holding, buffer tanks, finished product storage.

### MATERIALS OF CONSTRUCTION

MS, SS304, SS316, SS316L. Internal surface finish as per process requirement

### TYPICAL CAPACITY RANGE

200 liters to 10,000 liters

### DESIGN & CONSTRUCTION HIGHLIGHTS

- Vertical or horizontal orientation
- Flat, dished, or conical bottom designs
- Venting, level indication, and access ports
- Compact footprint with structural stability

### OPTIONAL FEATURES

- Agitation
- Insulation and cladding
- CIP spray balls
- Load cell mounting

### INDUSTRIES SERVED

Pharma, Cosmetics, Chemicals, Energy Storage, Petrochemicals, Specialty Materials, Food, Agrochemical

### COMPLIANCES

Designed and fabricated in accordance with:

- ASME Standards (where applicable)
- GMP design practices
- IS/ intl. standards for pressure vessels
- Client-specific requirements



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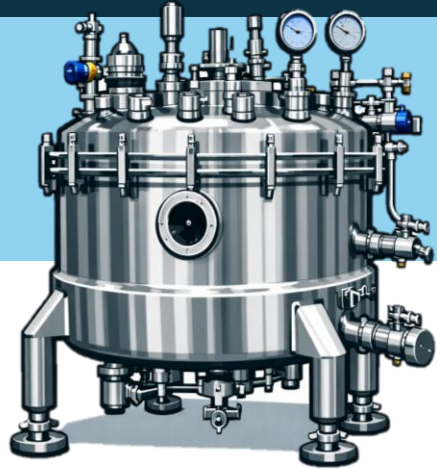
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# CLOSED-SYSTEM FILTRATION WITH PRODUCT CONTAINMENT

## NUTSCHE FILTER



Nutsche Filters are closed-system solid-liquid separation units designed for safe handling of hazardous, toxic, or high-value products. The equipment allows filtration, washing, and optional drying of filter cake within a single contained vessel, reducing material handling and operator exposure.

Apexind Nutsche Filters are engineered for reliable sealing, controlled pressure or vacuum operation, and efficient cake discharge. The robust mechanical design supports repeated pressure cycles while maintaining filtration efficiency. These systems are widely used in pharmaceutical and fine chemical applications where containment, product recovery, and regulatory compliance are critical.

### APPLICATION

API filtration, chemical intermediates, fine chemicals.

### MATERIALS OF CONSTRUCTION

MS, SS304, SS316, SS316L. Internal surface finish as per process requirement

### TYPICAL CAPACITY RANGE

0.1 m<sup>2</sup> to 2 m<sup>2</sup> filtration area

### DESIGN & CONSTRUCTION HIGHLIGHTS

- Filter cake washing and discharge
- Pressure or vacuum operation
- Fully enclosed system
- Bottom discharge valve integration

### OPTIONAL FEATURES

- Filtration under vacuum
- CIP system
- Explosion-proof design
- PLC automation

### INDUSTRIES SERVED

Pharma, Chemicals, Petrochemicals, Specialty Materials

### COMPLIANCES

Designed and fabricated in accordance with:

- ASME Standards (where applicable)
- GMP design practices
- IS/ intl. standards for pressure vessels
- Client-specific requirements



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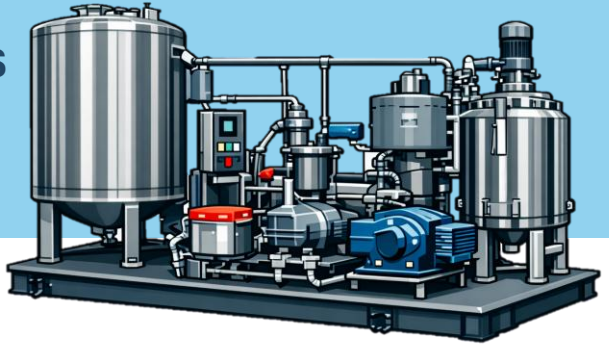
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# INTEGRATED SYSTEMS READY FOR INSTALLATION

## CUSTOM PROCESS SKIDS (TURNKEY MODULES)



Custom Process Skids are integrated, factory-assembled systems combining multiple process components into a single transportable module. Apexind designs these skids for space efficiency as per client's process design, to reduce site fabrication, minimize interface risks and accelerate project execution timelines.

Each skid is engineered with a clear focus on operability, maintainability, and safety. Equipment layout, piping routing, and structural design are optimized for compactness without compromising access or performance. These turnkey modules are ideal for modular plants, pilot units, and expansion projects where speed, quality, and accountability are essential.

### APPLICATION

Batch processing, dosing systems, utility skids, modular plants.

### MATERIALS OF CONSTRUCTION

MS, SS304, SS316, SS316L. Internal surface finish as per process requirement

### DESIGN & CONSTRUCTION HIGHLIGHTS

- Modular skid frame design
- Integrated piping and equipment
- Pre-tested assemblies
- Compact, transport-friendly layout
- Design based on Client's PFD/ P&IDs

### OPTIONAL FEATURES

- Pre-FAT testing at works
- Plug-and-play electrical junction boxes
- Color-coded piping for easy identification
- Lifting lugs and transport locking points
- Drain and vent headers integrated into skid
- Maintenance access zones marked on skid

### INDUSTRIES SERVED

Pharma, Chemicals, Petrochemicals, Specialty Materials

### COMPLIANCES

Designed and fabricated in accordance with:

- ASME Standards (where applicable)
- GMP design practices
- IS/ intl. standards for pressure vessels
- Client-specific requirements



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