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encapsulation solutions



LABORATORY & PRODUCTION MACHINE

**ENGINEERING
DIVISION**

UMANG GLOBAL GROUP PVT. LTD.

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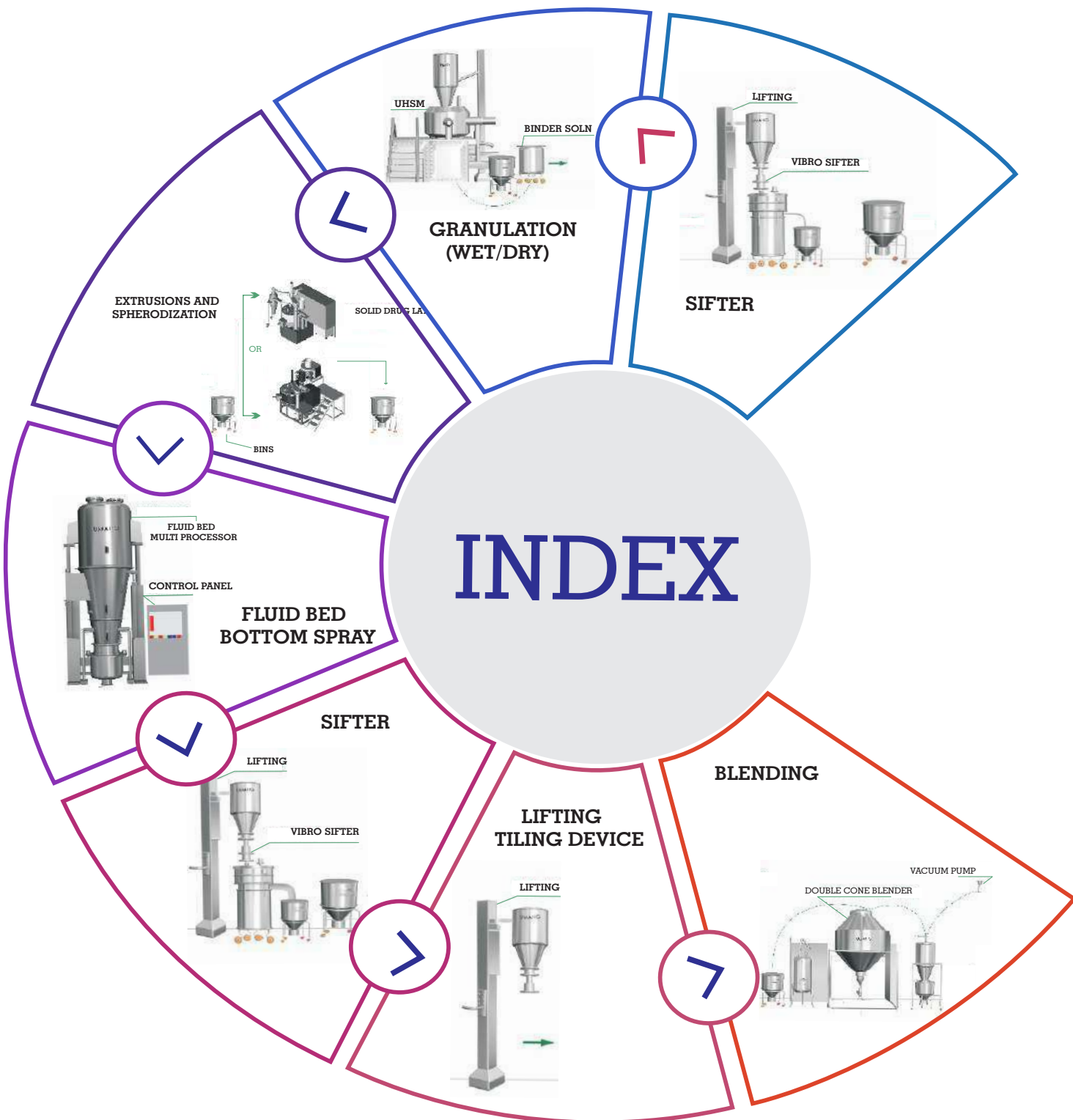
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LABORATORY & PRODUCTION MACHINE



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RAPID MIXER GRANULATOR

Brief Description

- Umang's Bench Top Compact Rapid Mixer Granulator is an ideal mixer for pharmaceutical, chemicals and food products, dry mixing and wet granulation. Designed to achieve excellent uniform mixing & consistent granules at lower operating cost.
- Spinning of material closed to the bottom of the mixing bowl and chopper blade sets the entire mixing in tumbling motion. Chopper blade assembly breaks the lumps formed during mixing. Mixing time consumed in processing depends upon the ingredients quantity & their Particle Size.
- Pneumatically operated bottom side discharge valve. Complete unit is mounted on rigid structure covered by S S Sheet.



Special Features

- Stainless steel 316 construction contact parts rest Stainless steel 304.
- A high speed Granulator is inserted horizontally through the wall of the bowl to assist uniform Mixing.
- high speed Choppers are placed in the lid of machine, avoiding powder/granules touching the lid. This results in uniform mixing of Drug through out the mass.
- Complete process Automation with PLC controls & HMI.
- Lid consists of charging hole, air filter and special type silicon gasket.
- Specially designed choppers to break lumps into small particles, allows uniform mixing by Impeller.

Advantage

- Unique design incorporating Impeller, Chopper & Side discharge valve.
- Single equipment for Mixing-Granulating.
- Parts easy to dismantle, clean and re-assemble.
- Minimum Clearance between Bottom Surface & Impeller allows scrapping & mixing.
- Complete inside of the Drum is machined giving uniform clearance of 0.4 - 0.6 mm between Drum & impeller.

Optional Features

- Stainless steel 316 L construction contact parts
- UL certification, CE marked Components.
- CIP provision.
- FLP Motors.

Throughput/Output:

Model	URMG-10	URMG-50	URMG-100	URMG-200	URMG-400	URMG-600
Capacity	4 Kg	20 Kg	40 Kg	80 Kg	160 Kg	250 Kg

EXTRUDER - DIE ROLLER

Brief Description

- Umang's Die Roller Extruder is specially designed for pharmaceutical and chemical industry, where it is used to produce granules of a defined diameter from moist or pasty raw materials. Granulation cylinders with minimum gap of 0.3 mm & bores between 1.0 mm and 3.0 mm are available to achieve different granule diameters along with better compaction
- The counter-rotating perforated cylinder and knurled, which improves the drawing behavior. Furthermore, the modular design allows changing and cleaning of all work tools and thus fulfills the requirements for flexible work resulting in efficient output & performance as well.
- Its cGMP Design & Tie rod Type Assembly allows quick cleaning and installation making it an ideal equipment for R & D to even large Production scale batches as high as 600 kgs/hr.



Special Features

- Moderate Compaction - Low fine generation.
- Complete process Automation with PLC controls & HMI.
- Larger & Efficient production Light pressure & Dense Extrusion Compatible
- VFD Driven Motor for infinite variable speed of rollers.
- Minimum Roller Clearance.
- Capable to produce Bigger Granule sizes upto 3.0 mm

Advantage

- Dense Extrusion & Light pressure Extrusion feasibility.
- Various Bore (1 mm, 2 mm, 3mm) of Perforated Roller for product suitability.
- Circle Feeder for uniform feeding to extruder Hopper.
- Easy cleaning & maintenance allows change over with minimal downtime, labor & tooling replacements.
- Suitable for different applications like pharmaceuticals, chemicals, nutraceuticals etc.

Optional Features

- Stainless steel 316 L construction contact parts , rest Stainless steel 304.
- 21 CFR part II
- Can be Integrated with Spheronizer for Automated operations.
- Perforated rollers 0.8, 1.0, 2.0 & 3.0 mm
- CE Approved Components
- FLP Motors.

Throughput/Output:

Model	UDRE-65	UDRE-100	UDRE-130	UDRE-200
Capacity	Up To 15 kg/hr	Up to 100 kg/hr	Up to 180 kg/hr	Upto 600 g/hr

EXTRUDER - BASKET

Brief Description

- Basket type design Ideal for Low Shear Extrusion with high production capability. Mostly used in agro chemical industries due to its consistent wet mass compression into an extrudable paste and eliminate dusting.
- Basket Extruders have many applications, in particular the manufacture of drug pellets and water dispersible granules. Extrusion take place centrifugally, and the mesh is of basket type in vertical position, The material is wiped through perforated screens by extrusion blades to produce well-formed cylindrical extrudates of a controlled diameter.
- Extrudates then fall onto a rotating table for discharge to the next processing step or slide down as per picture shown.



Special Features

- Modular, Compact, Cost efficient & GMP design.
- Continuous operation.
- Gentle product treatment results in low product temperature.
- VFD Driven motor for infinite variable speed of extruder.
- Various mesh configuration with different perforation / area / thickness for product suitability.
- Complete process Automation with PLC controls & HMI.
- Larger & Efficient production

Advantage

- Zero black particle generation.
- Built in Electrical controls.
- Proven design for effective operation.
- Pressing Roll with simple Radial construction.
- Low pressure extrusion for heat sensitive products.
- Ease of cleaning, and access to process components
- Mass production

Optional Features

- Stainless steel 316 L construction contact parts.
- CFR controls.
- Different mesh sizes
- Auto discharge turn table
- UL certification / CE components.

Throughput/Output:

Model	UBRE-75	UBRE-150	UBRE-300	UBRE-450	UBRE-600
Capacity / hr	1-10 kg	20 - 100 kg	100 - 300 kg	300 - 500 kg	Upto 1200 kg

EXTRUDER - RADIAL ,AXIAL, CONE

Brief Description

- Single Screw Plug & Play Extruders are Designed to suit Simplicity & Flexibility in optimizing the process in Application Labs. This innovative technology is available in three Variables i-e Cone, Axial & Radial attachment to suit different pharmaceutical applications for R&D as well as Small scale continuous Production



Radial Extruder



Cone Extruder



Axial Extruder



Dome Extruder

Special Features

- Compact Plug & Play design acquires limited amount of table space and GMP Suites for production of 250 gms - 6 Kg.
- Hassle free Dismantling, Cleaning & Assembling.
- Interchangeable extruder attachments- Axial, Radial & Cone, allows evaluation of three types of different pressure extrusion techniques.
- Complete process Automation with PLC controls & HMI.
- Jacketed Extrusion Chamber to provide continuous cooling during process.

Advantage

- Easily convertible into Cone, Axial & Radial Extruder
- Variable speed of extruder (20-100 rpm).
- Easy Cleaning & Maintenance Switch from one product to another with minimal downtime, reducing the costs of labor and tooling replacements.
- Low fine generation so efficient product processing for nearly 98% product recovery.
- Cooling & heating provision through Jacketing of Extrusion Chamber.

Optional Features

- Stainless steel 316 L construction contact parts rest Stainless steel 304.
- 21 CFR part II
- Interchangeable extruder attachments for Axial, Cone & Radial mesh.
- Meshes 0.4, 0.5, 0.6, 0.8, 1.0, 1.2, 1.5, 2.0 mm
- CE Approved Components
- DQ, IQ, OQ Documents.

Throughput/Output:

Model	USSE-60
Capacity	250 gms -6 Kgs / hr



TWIN SCREW EXTRUDER

Brief Description

- The Innovative technology is the outcome of 37 years Experience in Pelletization machinery. Bench Top Model with Twin Screw is specially designed for scale up & validation process.
- Making it suitable for scale-up studies also allows evaluation of two types of Different pressure extrusion techniques for production up to 15 Kg. Easy to dismantle and clean, thus Minimum maintenance is required .It is the flexible choice when taking the first step towards process optimization-thanks to its interchangeable components.
- This is Developed maintaining the operating principals of the larger pilot and production machines. A wide range of extrusion screen sizes and configurations are offered for optimization of pellet diameter, surface quality and size distribution.



Special Features

- Compact design acquires limited amount of table space and GMP Suites for pellet production upto 15 Kg processing.
- System components easily accessible for cleaning and maintenance.
- Interchangeable extruder attachments- Axial & Cone.
- Fully integrated with Allen Bradley PLC controls & HMI.
- Solid block processed Mesh for consistency & long Life.
- Jacketed Extrusion Chamber.

Advantage

- Fully Qualified & Documented.
- Lab cum Pilot scale production Feasibility.
- All the m/c components are precisely machined by CNC , hence interchangeability is assured.
- Allows evaluation of two types of different pressure extrusion techniques - Axial & Cone.
- Complete scalable model to large scale pellet production.
- Variable speed for extruder (20-100 rpm)
- Ideal for Research Development & Universities.
- Jacketing for heat sensitive drugs.

Optional Features

- Stainless steel 316 L construction contact parts rest Stainless steel 304.
- 21 CFR part II
- Can be Integrated with Spheronizer for Automated operations.
- Interchangeable extruder attachments for Axial & Cone mesh.
- Cone & Axial meshes 0.4, 0.5, 0.6, 0.8, 1.0, 1.2, 1.5, 2.0
- CE Approved Components

Throughput/Output:

Model	UTCE-35	UTCE-70	UTCE-110	UTCE-140
Capacity / hr	10-15 kg	50 - 70 kg	150 - 180 kg	200 - 300 kg

SPHERONIZER

Brief Description

- Spheronization is the necessary step of Granulation by extrusion. Its a self contained compact machine designed to deliver Spherical Pellets at fast production rates.
- It is a process where the preformed Vermicelli once dropped in the bowl & exposed to rotating Chequered Plate, are fragmented into pieces - equal length of diameter of Extruders, because of the tangential & centrifugal force, they collide with the cylindrical walls of the Spheronizer. Finally the rope type movement of the extrudes at the outer border give a rolling action on the fragmented extrudes & convert them into spheres.
- The size distribution and surface characteristics of the spheres are controlled by the batch size, speed, process time and, most importantly, by the characteristics of the extruded mass & pitch of chequered plate.



Special Features

- Compact design acquires limited amount of table space and GMP Suites for pellet production of 100 - 350 gms processing.
- System components easily accessible for cleaning and maintenance.
- Interchangeable Chequered Plate attachments, allows to produce Different Sizes of Spheres/Pellets.
- Complete process Automation with PLC controls & HMI.
- Standard 3.2 mm chequered Plate.
- Jacketed Spheronizer Drum.
- Minimal Radial Clearance between Plate & Bowl.
- Pneumatically controlled Auto Discharge.

Advantage

- Batch Process.
- Drum Built with a Solid Block to eliminate Contamination & black particle generation
- Radial Clearance & Air purging for maximum yield.
- VFD driven motor for infinite variable speed.
- Concentricity of Plate with Drum maintained.
- Jacketing for Temperature control.

Optional Features

- Stainless steel 316 L construction contact parts rest Stainless steel 304.
- 21 CFR Part 11 compliance.
- Cooling / Heating jacket for heat sensitive product.
- Various pitched (1 mm, 2 mm, 3.2 mm, 5 mm, 6.5 mm) Checkered Plate for product suitability.
- UL certification, CE Components.
- Radial plate can be provided.

Throughput/Output:

Model	USPH-150	USPH-250	USPH-380	USPH-500	USPH-700	USPH-900	USPH-1100
Capacity / hr	50 gm	250 - 500 gm	1-2 kg	2-5 kg	7-8 kg	9-11 kg	25-50 kg

BENCH TOP COMBO MODEL (UICE-LAB)

Brief Description

- UICE Lab is a Combo Model of Single Cone Extruder (USSE -30) & Spherodizer (USPH - 150) designed to acquire limited amount of bench space, the innovative technology is the outcome of 38 years of know how experience in pelletization machinery.
- Suits the pharmaceutical application of producing spherical pellets. Suitable for scale-up studies especially for Costly Molecules. Allows evaluation of three types of Different pressure extrusion techniques for batch sizes as small as 50 grams.
- Easy to dismantle and clean, thus Minimum maintenance is required .It is the flexible choice when taking the first step towards process optimisation-thanks to its interchangeable components.



Special Features

- Compact design acquires limited amount of table space and GMP Suites for pellet production of 50 -100 gms processing.
- System components easily accessible for cleaning and maintenance.
- Interchangeable extruder attachments- Axial, Radial & Cone, allows evaluation of three types of Different pressure extrusion techniques
- Fully integrated with Allen Bradley PLC controls & HMI.
- Standard 1mm cone mesh extruder & 3.2 mm Chequered Plate.
- Jacketed Extrusion Chamber & Spheronizer Drum

Advantage

- Fully Qualified & Documented.
- All the m/c components are precisely machined by CNC, hence interchangeability is assured.
- Complete scalable model to large scale pellet production.
- Variable speed for extruder (20-100 rpm) & Spheronizer (50-1500 rpm).
- Ideal for Research Development & Universities.
- Jacketing for Heat sensitive Drugs.

Optional Features

- Stainless steel 316 L construction contact parts rest Stainless steel 304.
- 21 CFR part II
- Interchangeable extruder attachments for Axial & Radial mesh.
- Cone meshes 0.4, 0.5, 0.6, 0.8, 1.0, 1.2, 1.5, 2.0 mm
- Chequered plate 1.0 mm, 2.0 mm & 6.5 mm.
- CE Approved Components

Throughput/Output:

Model	UICE-LAB
Capacity	50-1000 gms/hr

Umang's Integrated Continuous Equipment.

Continuous Technology

- For Improved productivity through automation, increased yield, efficient cleaning and most importantly uninterrupted process, Umang provides Integrated Models of Extruder & Spheronizer for making granules. This Innovative technology provides Interlocks for safety, Plug Flow - First in, First out - with negligible product hold up.

- Thus Integration is designed for continuous operation. The extrusion operation can be considered to be a wet granulation technique, applying pressure to a mass until it flows through orifice, that determines two dimensions of an agglomeration of particles. Extrude length is the dimensional variable. The extruded granules must have the combined characteristics of cohesiveness, firmness and plasticity. This operation has been divided into three stages such as breaking of the cylindrical segments or extrude , agglomeration of the broken segments and smoothing of the particles. Breaking of the cylindrical segments occurs due to the interaction of the extrudes with the rotating chequered plate, stationary drum wall and other extrudes particles. Agglomeration occurs when the small fragments produced during the breaking stage are picked up by the larger granules during smoothing. Spherical particles are created during smoothing stage by generating rotational motion of each granule about its axis and constantly changing planes.



- Intrgrated Ease : In this machine bucket assembly on load cell always positioned to store extrudes .The extruder continuously store the pellets in the bucket. When it attains predetermined mass it discharge the extrudes in to spherodizer drum When the extrudes are charged into the spherodizer drum, they are thrown to the outer periphery of the Chequered plate by centrifugal forces. By contact with the plate chequered edges , the extrudes are cut into short cylindrical segments & gradually rounded to spheroids. When the particles attain required spherical shape they are centrifugally discharged through the discharge door which pneumatically opens into the discharge hopper at predetermined time.

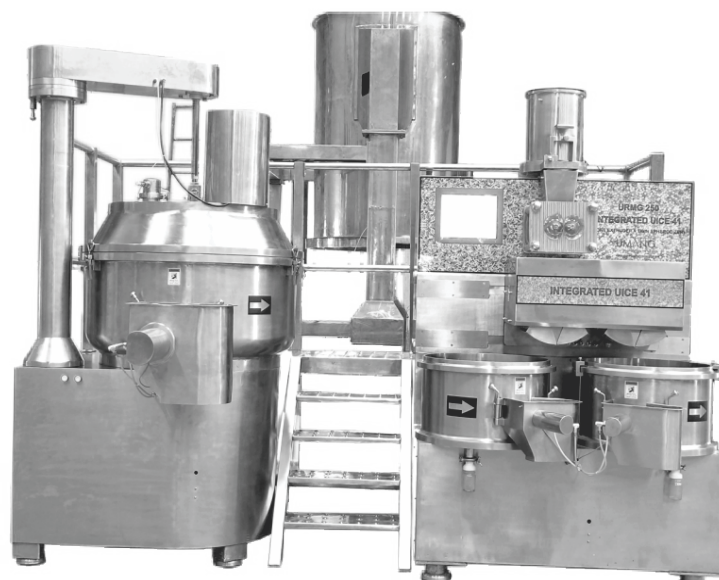
Throughput/Output:

Model	UICE - 25	UICE - 31	UICE - 71	UICE - 101	UICE - 251	UICE - 201
Batch Capacity kg/hr	10-15 kg	20-40 kg	50-70 kg	80-120 kg	150-180 kg	200-300 kg

MIXER CUM EXTRUDER

Brief Description

- Umang's Mixer Cum Integrated Extruder & Spheronizer is the outcome of 37 years of Know how experience in pelletization, in special applications where Solvents are the only adhesives, suitable for both Batch & continuous operations.
- This cGMP design is in direct connection to upstream granulation and downstream spheronization. The process has a very low Exposure to Environment which eliminates the evaporation of Solvents & contamination during transfers.
- Mixer / extruder/ spheronizer all can be provided with jacket for cooling or heating as per the product requirement.



Special Features

- Compact design acquires limited amount of space and GMP Suites for Extrusion.
- Steel flat bed arrangement
- Fully integrated with Allen Bradley PLC controls.
- Single screw cone discharge design
- Forward & Reverse Direction Rotating Discharge Screw for Proper Mixing.
- Jacketed/Insulated Mixing Chamber

Advantage

- 2 - 3 mm Mixing blades clearance, results in homogenous mixing.
- Different sized nozzles for solid charging, liquid charging, discharging etc.
- Complete scalable model to large scale production.
- Dust-free closed system
- Control the residence time by determining process time and RPM.
- Increased efficiency of liquid to solid contact by spraying.

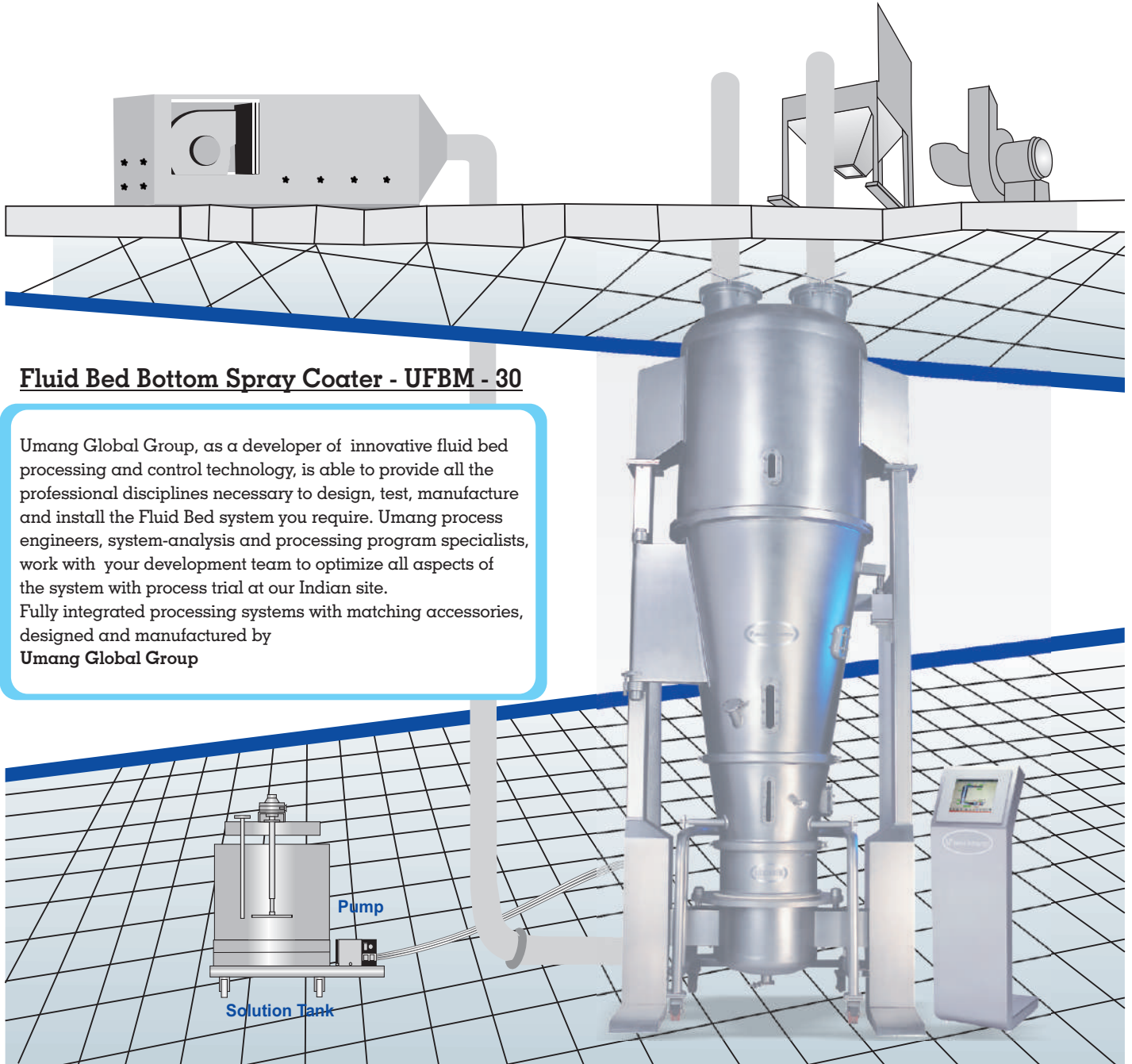
Optional Features

- Stainless steel 316 construction contact parts rest Stainless steel 304.
- Liquid feeding by weight from a liquid tank which is on load cell by a liquid pump.
- Interchangeable extruder attachments.
- Different sized nozzles for solid charging, liquid charging, discharging etc.

Throughput/Output:

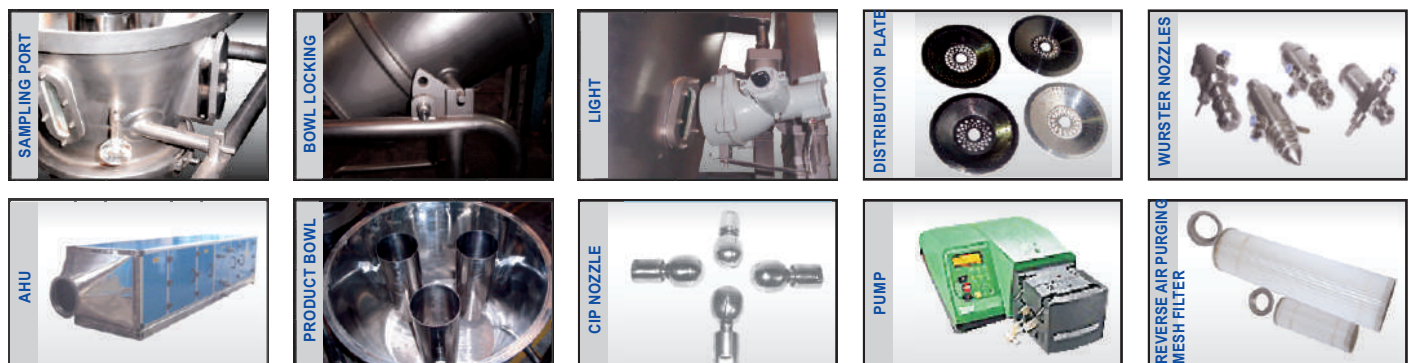
Model	UCKM 30	UCKM 150
Capacity	Upto 30 kg	Upto 150 kg

FD MULTI PROCESSOR



Fluid Bed Bottom Spray Coater - UFBM - 30

Umang Global Group, as a developer of innovative fluid bed processing and control technology, is able to provide all the professional disciplines necessary to design, test, manufacture and install the Fluid Bed system you require. Umang process engineers, system-analysis and processing program specialists, work with your development team to optimize all aspects of the system with process trial at our Indian site. Fully integrated processing systems with matching accessories, designed and manufactured by **Umang Global Group**



BENCH TOP FLUID BED MULTI PROCESSOR

Brief Description

- Umang's Fluid Bed Multiprocessor is an Ideal Stand alone multipurpose model for Research & different applications like Drying, Granulation, Powder Coating, Layering & Spheronizing with Different Options in single Unit Top Spray, Bottom Spray & unique Rotor Technology.

Top Spray Granulation :

The fluid bed granulation process (also known as agglomeration) involves suspending particles in an air stream and a suitable binding agent is sprayed from the top into the fluidized bed (top-spray). Particles in the path of the spray get slightly wet and become sticky. The sticky particles collide with other particles in the bed of material and adhere to them to form granules. The agglomerates formed are subsequently dried. In addition to the very effective drying process, granulation and coating processes with the top spray method offer many advantages in the fluid bed.

Top Spray Advantage :

- Optimized solubility
- Lower fine generation
- Bulk Density can be controlled
- Different coatings, taste masking possible

Bottom Spray coating

The basic concept in Bottom Spray (Wurster) coating is to separate the particles in the fluid bed from one another in an air (gas) stream. While the particles are suspended, a coating formulation is sprayed from the bottom of the bed up onto the particles (bottom-spray).

Rotor Technology

This processing technique is with its physical principles quite similar to bottom-spray coating, only that the product motion is provided by a motor driven rotor disc. High Centrifugal Energy is created & co current spraying takes place in the product bed resulting in denser film deposition. Rotor granulation can be accomplished by spraying a suitable binder suspension on powders, granulation & spheronization is completed by the spherical rope motion of the formulation. The final stage drying can be rapidly achieved as the large free area around rotor disc allows throughput of large air volumes.

Rotor Technology Advantage

- Comparatively highly spherical & less porous granules, as particle is permanently rolling on its own axis.
- Rotor induced centrifugal force creates a denser film deposition.
- The rotor process provides the ability to granulate, spheronize, coat and layer.
- Granules with good content uniformity.

Special Features

- Single Machine with Multiple Processing Inserts.
- Standalone Compact & Modular Design complying cGMP Standards.
- Unique Distribution plate with Air Barrier for uniform coating.
- Rotor Stator Gap allows efficient process air volume to apply lifting force of granules.
- Stainless steel 316 L construction contact parts rest Stainless steel 304.
- 8" Pan - Stainless steel Perforated Drum.
- 21 CFR part II.

Optional Features

- UL certification, CE Components
- FLP Motor.



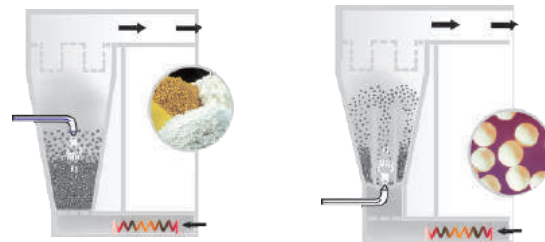
Bottom Spray Advantage :

- Allows Control release coating
- Allows Enteric Coating & Active ingredient Layering As well.
- Several layer of coatings can be applied.
- Special Design Distribution plate with Air barrier for better performance.

MINI LAB COATER

Brief Description

- The most commonly used & intensively investigated pelletization technique includes solution layering. Layering a solution/suspension of a drug on a "Non Pareil Seed" can produce pellets that are uniform in size distribution & generally possess good surface morphology.
- Umang's Small Compact Fluid Bed Multi Processor for bottom spray coating, top spray granulation & drying, Mini Lab coater is ideal for handling fine powders, pellets, granules. Mini Lab Bottom- top spray has been developed to meet the pharmaceutical industry's requirements for flexibility in unit operations and is based on the principle that one basic unit can be used for numerous processes simply by interchanging a module.
- It is the flexible choice when taking the first step towards process optimisation-thanks to its interchangeable components.



Special Features

- Fully integrated with HMI
- Modular, Compact & cGMP design allows three process in single Unit i-e Bottom Spray Coating, Top Spray Granulation & Drying.
- Low noise level. Liquid dosing speed / volume.
- System components easily accessible for cleaning and maintenance.
- Complete scalable model to large scale pellet production.
- Anti-static filter bag assembly.

Advantage

- Range of applications - Drying, Granulation, Coating.
- Ideal Drying Time.
- Low Mechanical force results in low Bulk Density Granules.
- Homogenous distribution of all components.
- 300 - 500 gms. batch capacity for wurster coating.
- 250 - 600 gms. batch capacity for top spray granulation.

Optional Features

- Stainless steel 316 L construction contact parts
- 21CFR controls possible on options.
- UL certification

Throughput/Output:

Model	UMLC	UFBM-1	UFBM-3	UFBM-5	UFBM-15	UFBM-30	UFBM-120	UABM-300	UABM-750
Capacity / hr	750 gm	1 kg	1.5 kg	2 kg	6 kg	12 kg	60 kg	120 kg	300 kg

BENCH TOP MINI DRYER

Brief Description

- Fluid bed drying is an efficient method to remove residual moisture. During the process, the moist Spheres are fluidized, dried and carried through each section of the fluid bed using hot air blown through specially designed bottom perforated plate.
- Umang's Bench Top Mini Dryer is perfectly designed to acquire limited amount of bench space. It consists of an Inlet chamber, Product chamber & filter bag. The material is charged into the product chamber & cartridge heated Air current is induced inside the chamber by means of a blower. The hot air stream passes through the bed of the material and fluidizes the product particles by creating the turbulence in the chamber
- This turbulence inside the bed assists in the transportation of the material over the length of the dryer. Due to fluidization, the particles get surrounded by hot air, which leads to quick & uniform heating and drying.



Special Features

- Compact design acquires limited amount of table space and GMP Suites processing of 2 Kgs
- System components easily accessible for cleaning and maintenance.
- Plug & Play Model
- Special Mesh for Uniform Air Distribution.
- RTD Sensors to monitor & control flow & bed temperatures.

Advantage

- Plug & Play Model Ideal for Research & Institutes
- Interchangeable bowl for variable batch sizes
- Special transparent closing to view the process.

Optional Features

- Stainless Steel SS 316 L construction contact parts.
- Different meshes available
- CE marked components
- FLP Motor.

Throughput/Output:

Model	Mini dryer-1	Mini dryer-3-5
Capacity	0.3-1kg/ batch	3-5 kg/batch

SOLID DRUG LAYERING

Brief Description

- Powder layering is similar to the solution or Suspension layering. Instead of these method the layering is performed using a drug powder. The process involves the deposition of successive layers of drug or excepients or both on preformed nuclie or cores (Non pareil seed) with the help of a binding liquid.
- It is a centrifugal processing of single unit operation resulting in the formation of uniform size pellets. The operation is carried out using a Drug layering rotating plate, Dry powder dusted on nonpareils adheres seeds, increasing their size and forming larger pellets as per requirements. Growth occurs by a process of blending of powder / liquid binding and consolidation. After liquid addition and layering of active creates the correct diameter pellets & with formation of rope movement uniform pellet size happens.
- The requirements of process validation is simplified as the complete spheroid production process is restricted to a single processor.



Special Features

- Unique Layering plate with zero crushing arrangement for starter cores.
- Minimal radial clearance between plate & drum and air purging from bottom.
- Tangential Spray gun with peristaltic pump and ml/min. flow rate controls along with Loss in weight powder feeder controls.
- Complete process Automation with PLC controls & HMI.
- Pneumatic Lifting of Layering plate.

Advantage

- Micronized liquid spraying system on weighing control.
- Variable speed of rotating plate.
- Pneumatic plate lifting for Easy Cleaning & Maintenance to Switch from one product to another with minimal downtime.
- Negligible process loss of Drug.
- Special Design Powder feeder with complete control on HMI

Optional Features

- Stainless steel 316 L construction contact parts.
- Vacuum suction powder feeder system on weighing control
- Various nozzle sizes.
- Jacketing on product bowl.
- UL certification, CE Components.
- 21 CFR Part II
- FLP Motor
- Moving Trolley for Layering plate cleaning.

Throughput/Output:

Model	USDL-220	USDL-400	USDL-900	USDL-1130
Capacity	200-600gm	1-3Kg	20-60 Kg	40-90Kg

PELLET PROCESSOR

Fluid bed rotor processor

- Umang's Pellet processor is dynamically designed to achieve excellent centrifugal drug layering with conical rotor insert to produce pellets or granules from powder with the use of Liquid Binder, allows achieve highest payload of API in smallest granule. Which results in Extremely fast process for high weight gain coatings, larger batch sizes. The minimized rotor-stator gap provides fine air flow control that allows large amount of air for Drying. In a Nut Shell Pellet Processor is a One-Pot Operation for Drying, Layering with high sphericity on high RPM.

Lets understand the Process : Centrifugal layering of drugs involves the deposition of successive layers of an active compound (powder and liquid) onto nonpareil seeds resulting in the formation of bigger uniform sized pellets. The operation is carried out using a conical rotating plate known as Layering Plate with a vertical shaft spinning at pre-determined speed (200-700 rpm) at the bottom of the cylindrical drum. A tangential liquid spray system enable the product to get wetted. A tangential powder spray system enable the uniform deposition on to the seeds. Successive wetting, powder layering, and the spinning inside the drum resulting in the formation of bigger uniform sized pellets



Special Features

- Special design Solid, Truncated Cone Type Rotor Insert.
- Top filter chamber & Pneumatic Discharge Door in SS316
- Conditioned bottom purging air & top air supply system
- Micronized liquid spraying system on weighing control
- Precision powder feeder system on weighing control to deliver Very fine or micronized powder directly into the product bed.
- Dust-free Closed system.
- Swivel construction for expansion chamber for ease of cleaning & charging.
- Reduced process time - increases yield.
- Complete process Automation with PLC controls & HMI.
- Hot air supply from the top (adjustable in height) helps Efficient Drying.

Advantage

- One-pot Operation for Layering & Drying.
- Conical Rotor design & small curvature of plate, pushes the material downwards for efficient coating.
- Closed Structure eliminates Dusting.
- Tangential Liquid spraying nozzle delivers micronized Liquid into Product bed for efficient coating.
- Precision Powder Feeder with Vacuum suction technology delivers **mist** to the product bed for Excellent layering.
- Low - cleaning & restart time.

Optional Features

- Stainless steel 316 L construction contact parts rest Stainless steel 304.
- 21 CFR Part II
- UL Certified, CE Marked components.
- FLP Motors

Throughput/Output:

Model	UPPR 300	UPPR 1200
Capacity / Batch	Up to 2 kg	Up to 60 kg

BENCH TOP PAN COATER

Brief Description

- Bench top Pan Coater is designed to acquire limited amount of bench space used for small scale sugar, film or enteric coating of tablets, capsules, pellets or spheres.
- Depending on drum size, the typical batch range varies from 50 gm to 500 gm of product. Suitable for crucial R&D Development of tablet coatings like to strengthen tablet, improve stability, control release, taste masking it & esthetic color as well.
- Integrated on Fixed stand consists of a 6" & 8" pan coater, to work with 50–150 gms & 150–500 gm of tablets has a Stainless Steel drum (Interchangeable) & HMI allows monitoring & control of critical parameters, thus make its a perfect Model for pre-clinical & clinical applications.



Special Features

- Full transparent housing for good visibility.
- Easy to dismantle and clean.
- Complete process Automation with PLC controls & HMI
- Hinged door allows Negligible product hold-up.
- Stainless steel perforated interchangeable drum: 350 ml to 1 liter set-up

Advantage

- Monitoring and control of all critical parameters
- Easy filling, discharging and sampling
- Easy drum changes (no tools required)
- Critical process data such as temperatures, pressures and speeds are handled by the control unit
- Documentation - DQ / IQ / OQ

Optional Features

- Stainless steel 316 L construction
- contact parts rest Stainless steel 304.
- 8" Pan - Stainless steel Perforated Drum.
- 21 CFR part II.
- UL certification, CE Components
- FLP Motor.

Throughput/Output:

Model	UHPC-6/8	UHPC-12/15
Capacity	50-500 gm	1-3 kg

BENCH TOP SPHERICITY CHECKER

Brief Description

- Sphericity Checker Technology is a new innovation of UPPL it is the solution for the critical problems faced by companies because of the difference of variation in spheres / pellets size for optimization and standardization of spheronization time. The technology can be transferred to higher capacity for standardize the actual production module.
- The benefit to the user is the ability to get absolute size of pellets / spheres for further processing and its application. The vibrating assembly of sorting tray and feeder extends from vertically to one corner of the tray. The complete assembly is mounted on a platform with different sphere collecting chamber of its own nature with complete assembly on front side.
- The system is suitable for pelletization process primarily focused in optimum and uniform pellet size which leads to subsequent coating thereby causing accurate dissolution and disintegration in a respective media. The device is advantageous for pelletization, formulation development, formulation assurance, process consistency.



Special Features

- Stainless steel 316 construction contact parts rest Stainless steel 304.
- Compact design.
- Sorting Tray and feeder.
- Touch screen control.

Advantage

- Easy to dismantle and clean.
- Vibration can be regulated through for different degree of agitation during sorting process.
- Negligible product hold-up due to separate collecting chambers for spherical spheres or oblong spheres.

Optional Features

- 21 CFR compliant with batch records on pen drive.
- UL certification, CE marked components.

Throughput/Output:

Model	USC-1	USC-5
Capacity	1-3 Kg/ hr	5-10 Kg/hr

HOT MELT EXTRUDER

Brief Description

- Hot Melt Extrusion is the upgraded version of Twin screw Extruder with heating as an element, it is the robust, Novel technique to make solid dispersions to provide - extended, modified & targeted drug delivery, as well as taste masking of bitter API. Hot melt Extrusion applies heat & pressure to melt a polymer & force it through an extruder in a continuous process.
- In an Umang Hot Melt extruder a number of processing steps are combined, including Uniform feeding, melting, mixing, venting, discharge and chilling. The control unit facilitates online monitoring and accurate adherence of the set process parameters. Specifically designed Heating and cooling plate with cartridge heaters, RTD sensors and thermic fluid cooling system heat the product to the required temperatures at different zones. Pair of segmented screws, which will be co rotating in anti-clock wise direction inside the segmented long barrel push forward the blended powder through different heating and mixing zones to the extruder die plate.
- By these a compressive force will be applied on the semi-solid mass. When the force on the semi-solid mass exceeds the minimum force for penetrating the orifice of the die plate, extrudes starts coming out. During the process the product get melted and mixed thoroughly



Special Features

- Contact part hardened steel SS440, SS316, non contact part Ss304
- Complete process Automation with PLC controls & HMI allows integration of several process steps in one machine
- Nitride hardened SS 316 Specially Designed Mixing Elements
- Efficient Heating & cooling circulating system with modulating control

Advantage

- It Yields high product Density.
- small footprint, even for high throughput rates
- Short processing time with excellent mixing capabilities (distributive and dispersive)
- Uniform Powder Feeder to extruder hopper
- Chilling Roller cum Cutter Unit to cool & crush extrudes into cylindrical granules.

Optional Features

- 21CFR part II.
- Different Diameter of extrusion heads (1, 2, 3 & 5 mm).
- UL Certification, CE Components.
- Chiller.

Throughput/Output:

Model	UMSE-25/30	UMSE-40/30
Capacity	2-5 Kg	15-20 Kg

ROLL COMPACTOR

Brief Description

- Roll Compaction is a dry granulation process used to force fine powders between two counter rotating rolls and presses the raw materials into a solid compact (flakes, sheets, strips) granules prior to final compression.
- The process is used if the ingredients to be granulated are sensitive to moisture or heat. Typical excipients used in Roller compaction are lactose, Micro-crystalline Cellulose & Magnesium Stearate etc. as the lubricant.
- Umang's Roll Compactor machine is ideal for increased bulk density, making granules, dust free processing and reducing packing size of pharmaceutical ingredients in pharmaceutical industry, in food as well as chemical industry for densification and granulation of powder.



Special Features

- Maximum pressure gives Desired Grain Size
- Low fine Generation
- Hydraulically operated Uniform force distribution system to produce granules of equal quality.
- Power pack motors with 1HP capacity
- Roller diameter 100mm, variable speed (20 - 150 rpm).
- Cleaning & maintenance made easy with Hydraulically operated Feeder assembly.
- Specially designed Screw Operated Powder feeder.

Advantage

- In compliance with cGMP guidelines
- All covers are designed to obtain dust-free operation
- Feed screw is steplessly driven through variable frequency drive.
- Hydraulic Power Pack system
- Limit switch for chamber, Slip clutch at drive of auger, Overload relay & Emergency stop.
- The hopper and auger/ feeder assembly is lifted by hydraulics for easy cleaning & dismantling.
- Gravity feed to funnel & pressed into compacting roller by pressing screw.

Optional Features

- Stainless steel 316 L construction contact parts.
- 21 CFR part 11.
- Various mesh size milling merge.
- UL certification, CE Components
- Flame Proof Motors.

Throughput/Output:

Model	URCP 30	URCP 200
Capacity	Upto 30 kg	Upto 150 kg

MDF CASTING

Brief Description

- Film Casting Assembly is the heart of this process. Compact, clear and flexible design, the lab machine is ideally suitable for research and development as well as for the production of stability and clinical patterns. Technical highly sensible components regulate feeding & casting of materials within the machine. Dancers, web edge controls, and winding and rewinding devices are the basic technologies for producing Film Casted Rolls.
- cGMP compatible Cantilever Design consists of a set of roller arrangement for holding and smooth movement of substrate and casted film, Coating assembly to coat continuously on a substrate film with solutions or dispersions in variable thickness with accuracy 500-900 microns. Thickness adjusting mechanism by viewing a built in thickness indicating micrometer dial.
- Set of cartridge heaters inside drying chamber to heat air flow system which dries the film. Winding rollers to roll back the casted film for next step of Slitting & Packing.



Lets Understand the Process :- The substrate film will be released from the unwinding roll towards winding roll, the solution is coated on a substrate film at coating station in predetermined manner. The laminated wet solution film moves through drying zones. The temperature at drying zone is being sensed and set as required. A dried layer of product over the substrate film will be coming from the drying zone continuously and wound on a winding roll . The machine is equipped with web aligner , force sensor and full automation

SOLUTION TANK → FILM CASTING → FILM SLITTING → STRIP PACKING.

Special Features

- Compact, Modular & cGMP Design.
- Cantilever type design for complete unwinding and winding process.
- VFD Driven motor for infinite variable speed
- Servo Motors for Linear Speed & Speed sensors with Automatic Web Aligner.
- Automatic Web tension alignment through Force sensor.
- Precise closed coating system & High efficient drying zones with double skin
- RTD sensors and temperature controls for individual zones.
- Electric cartridge heaters for Efficient Drying.
- Fully integrated Controls with Standard PLC, OIT, VFD, SCADA.

Advantage

- Continues Automated Process
- High Coating accuracy.
- Uniform air flow throughout the machine for Efficient Drying & Product performance.
- Liquid dosing system there by minimal human interference.
- Cantilever type design for winding and unwinding, hence substrate and product rolls can be simply inserted from front.
- Insulated Drying Chambers for Efficient Drying without Heat Dissipation.



Throughput/Output:

Model	UCF- 300	UCFC- 600
Capacity	800 Strip	5000 Strip

MDF SLITTING

Brief Description

- Umang Global Group Pvt Ltd' s USLT-300 is a film Slitting machine designed to slit the mother film to child film coils as per the required width. The entire slitting chamber is visible from outside.
- It ensures that, there is no place for hidden debris and product contamination. Film roll can be loaded/ unloaded from the front side by simply sliding on to respective roll shafts. The machine is controlled locally, without interlocking with down-line machines.



Lets understand the process : The mother film coil is mounted on the unwinding roll, empty roll reel is assembled on child film winding roll and to lay and connect through the slitting station. Activate the machine. The mother film coil will be released from the unwinding roll by pulling action of winding rolls. The mother film coil moves through slitting station. At slitting station mother coil film will be slit in to pre-determined width by slitting blades. These slits will be wound on different child coil rolls.

Special Features

- Built in electrical / HMI panel.
- Cantilever Design Roller for Holding & pulling roller for smooth movement of mother film roll.
- Top slitting roller with high shear blades.
- Child coil Reel holding rolls with clutch gear arrangements
- Mechanical system to provide uniform winding torque for child coil rolls
- Idler rollers to guide and direct the webs

Advantage

- Top slitting roller with high shear blades to slit the mother film into different child films of width as required.
- Mother film coil unwinding station with pneumatic brake control
- Child coil winding station.
- Pulling system

Throughput/Output:

Model	USLT-LAB	USLT-25	USLT-50	USLT-100	USLT-200
Capacity	2500 Strips/day	25,000 Strips/day	50,000 Strips/day	100,000 Strips/day	200,000 Strips/day



MDF PACKING

Brief Description

- Umang's USTP 10K is a Single track Automatic Strip Packing machine specially designed for R&D & Pilot Scale Production.
- The entire Assembly is visible from outside. It ensures that, there is no place for hidden debris and product contamination.



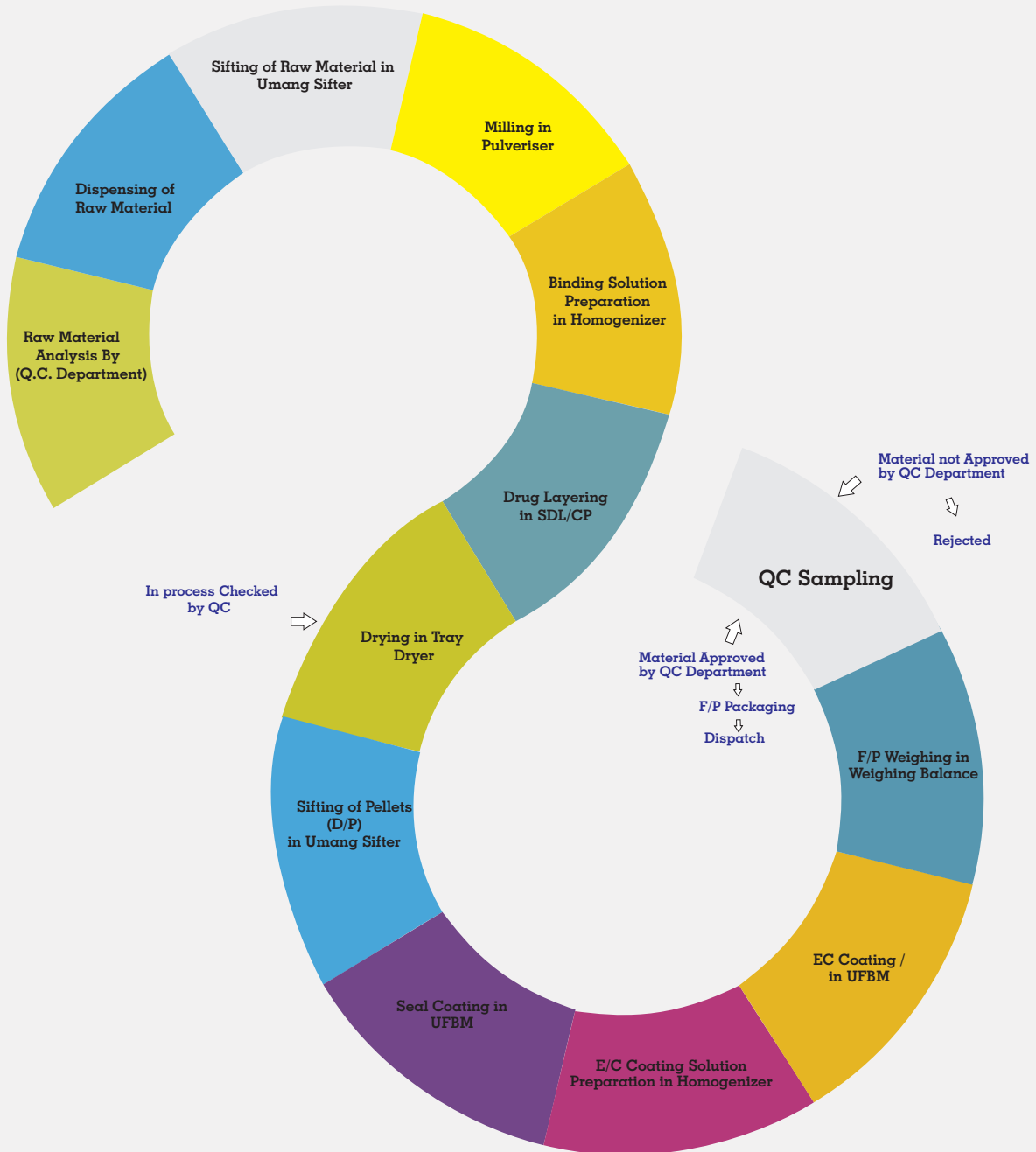
Lets understand the process : The product film with substrate film roll is mounted on the unwinding roll, empty roll reel is assembled on substrate winding roll and to lay & connect to winding roll. The bottom packing foil roll to mount on the unwinding roll and to lay & connect to trim winding roll. The top packing foil roll to mount on the unwinding roll and to lay & connect to trim winding roll. Activate the machine. The substrate film with product will be released from the unwinding roll by pulling action of winding roll. The substrate film will be separated from product film at substrate separating station and get wound on it's winding roll. The product film moves through striping station by the pulling action of Servo controlled motor drive. Here the film will be cut in to pre-determined length by stripping blade. These strips will be picked and placed on the bottom packing foil. Top packing foil come and lay on top of the strip by indexing pulling. Together it moves in to sealing station and get sealed. Then get blanked at blanking station. Trim will get wound on trim winding roll. Blanked packs fall on the conveyer and then to collecting tray.

Special Features	Advantage	Optional Features
<ul style="list-style-type: none"> • Cantilever design Rollers for Holding & separation of Product film. • Slitting Mechanism with high shear blades. • Stripping station with high shear blade to strip the film into required length. • Vacuum pick and place system to place strip on bottom packing foil at pre-determined position • Servo motor driven Linear-indexing station to pull the packing foil to sealing station and then to blanking station. • Sealing is designed with unsealed holding area at sides. • Blanking station to blank the strips to designed shape. • Printing station to print batch no , code no , MRP dates etc in-line. • Trim winding shafted roll with geared AC motor drive for scrap trims of packing foil. • Conveyer with geared AC motor drive for conveying packed strip to it's container 	<ul style="list-style-type: none"> • The speed of the rollers is controlled by linear motion encoder, PLC & VFD. The Human Interface is a touch screen, allows smooth Linear Movements. • Product unwinding station with pneumatic brake control for precision of Bottom & Top Packing Foils. • High Shear Blades for desired Length. • Vacuum Pick & Drop minimizes rejections. • In-line Printing station for Batch No., Code No. Dates & MRP on Top Foil. • High efficient sealing system with cartridge heaters. • Branded Geared AC Drives enable Efficient Sealing, Blanking & Trim Windings. • Sensor separates the empty pouch in rejection area. • Conveyer to drop the packed pouches in collecting tray. 	<ul style="list-style-type: none"> • Single Strip Pouch Packing • Multiple strip Cassette packing.

Throughput/Output:

Model	USTP- 10K	USTP- 40K
Capacity	Upto 1200 strip	Upto 5000 strip

MANUFACTURING FLOW CHART



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GLOBAL PRESENCE



Connect With Us

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