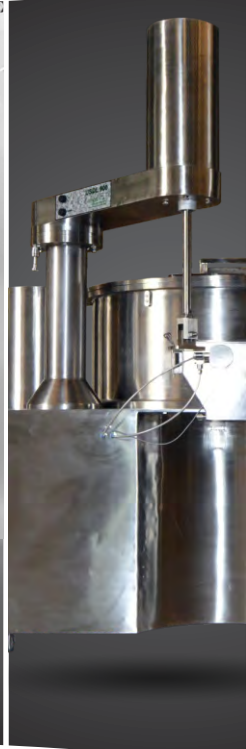


# UMANG

*encapsulation solutions*



# ENCAPSULATION

PELLETIZATION AND ORAL THIN STRIP SOLUTIONS (2015-2016)

# TECHNOLOGY TRANSFER

YOUR BRAND



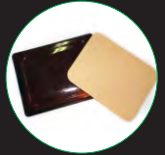
MICRO PELLETS



FILMS



PATCHES



OUR TECHNOLOGY

OUR INNOVATION



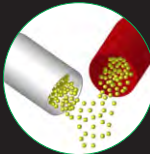
UICE LAB



GRANULES































PELLETS



YOUR PRODUCT

# OUR ENCAPSULATION SOLUTION

	<b>Product Development</b>		<b>Oral Thin Strips</b>		<b>21 CFR Compliant</b>	
<b>Performance Qualification</b>		<b>Sustained Release Products</b>		<b>Technology Transfer</b>		<b>Design Qualification</b>
	<b>Laboratory Scale</b>					
<b>Research &amp; Development</b>		<b>Agrochemical Processing</b>		<b>CNC manufactured components</b>		<b>Operational Qualification</b>
	<b>Pharma Pellets</b>		<b>start Up Assistance</b>		<b>Operational Guidance</b>	
<b>Remote Support</b>		<b>Installation Qualification</b>		<b>Chemical Pellets</b>		<b>Enteric Coated Products</b>
	<b>Pilot &amp; Production Scale</b>					
<b>Food &amp; Nutraceutical</b>		<b>Siemens Controls</b>		<b>High Quality Stainless Steel</b>		<b>Personal Care Segment</b>
	<b>Rockwell Automation Controls</b>		<b>Pharmaceutical Processing</b>		<b>Personal Care Segment</b>	

# LABORATORY SCALE

## CONE EXTRUDER



## SPHERONIZER



## COMBINED EXTRUDER & SPHERONIZER



## SOLID DRUG LAYERING

# LABORATORY SCALE



**PAN COATER**



**HOMOGENIZER**



**UMDF - FILM CASTING EQUIPMENT**

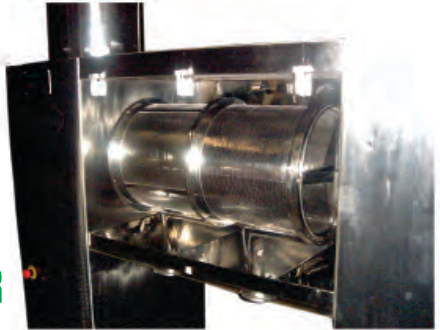


**SPRAY DRYER**

# LABORATORY SCALE



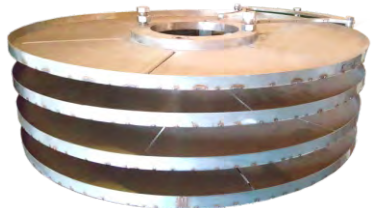
**ROLL COMPACTOR**



**CONTINUOUS SIFTER**



**TRU SPHERE**



**CONTINUOUS TRAY DRYER**

# LABORATORY SCALE



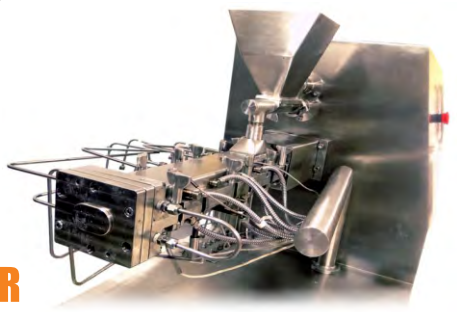
## OIL FILLED BEADS



## VACUUM TRAY DRYER



## HIGH SHEAR GRANULATOR



## HOT MELT EXTRUDER

# INTEGRATED EXTRUDER SPHERONIZER [UICE]



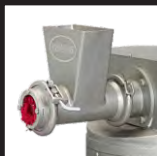
LAB SCALE



RADIAL EXTRUDER



CONE EXTRUDER



AXIAL EXTRUDER



DIE ROLLER EXTRUDER



BASKET EXTRUDER



MIXER EXTRUDER



SPHERONIZER



# COMBINED EXTRUSION SPHERONIZATION

A Fully integrated continuous drug pelletization system consisting Extruder (Axial / Cone / Dome / Radial / Die roller / Basket extruder etc.), with twin bucket weigh assembly and twin spheroidizer for continuous pelletization, suitable for Large scale production of pellets.

This system fully integrates the extrusion and twin spheronization processes for converting drug formulations into free flowing spheres of controlled shape and size of various sizes from 300 top large micron pellet sizes as desired.



## PELLETIZATION SOLUTION



## OPTIONAL FEATURES

- Radial / Cone / Axial extrusion machine with various mesh size (0.3/0.4/0.5/0.6/0.8/1.0/1.2/ special size) or any other special shape possible.
- Die roller extrusion 1mm and larger sizes possible.
- Teflon coated drum.
- Various sizes of chequered plate (1mm / 2mm / 3.2mm / 6.5mm).
- Load cell based weight system between extrusion and twin spheronizer.
- Jacketed / Insulated extrusion chamber and Spheronizer drums for temperature / heat sensitive applications.

## THROUGHPUT / OUTPUT :

<b>Model</b>	UICE - LAB	UICE - 20 (SPH-380)
<b>Capacity</b>	20 - 1000 gms/hr	5 - 15 kgs/hr
	UICE - 41 (Twin SPH-500)	UICE - 101 (Twin SPH-700)
	30 - 50 kgs/hr	80 - 100 kgs/hr
	UICE - 250 (Twin SPH-900)	
	250 - 300 kgs/hr	

# AUTOMATED SOLID DRUG LAYERING

Drug layering is the new pelletization range that builds on the proven Umang technology and its operational benefits. Similar design of loss in weight twin screw feeder, rotating plate and spray gun for liquid ensures that process and validation scalability from a laboratory scale to a production scale. This unique design of twin screw feeder, plate and spray nozzle makes the not only a perfect drug layering machine but also an ideal machine suited for fast pelletization. Powder loading from 10 - 600% is possible using this technique of pelletization. Our unique sensors assure the product to be layered without touching the product during operation. Minimum size of pellets which can be layered is 300 microns and above.



## THROUGHPUT / OUTPUT :

Model	USDL - 220	USDL - 400	USDL-700	USDL - 1030	USDL - 1330
Capacity	100 - 800 gms/Batch	2 - 3 kgs/Batch	20 - 30 kgs/Batch	50 - 60 kgs/Batch	100 - 120 kgs/Batch



## STANDARD FEATURES

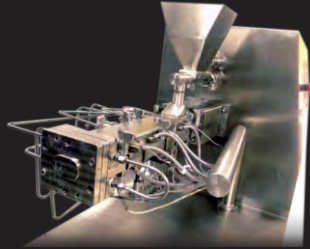
- Compact design suitable for GMP suites for continuous powder loading pelletization.
- Fully integrated with Allen Bradley PLC controls and 12.1" IPC (21 CFR Part 11 certified).
- Perfect cGMP - design: smooth covering, No external tubing and piping allowing easy cleaning.
- Integrated plate lifting device for drug layering plates.
- Twin screw feeder on load cell for powder spray.
- Variable speed for drug layering plate & Load cell based Twin screw feeder.
- Cyclone assembly for capturing the dust and blower assembly for blowing air.
- Two nozzles one for powder and other for liquid spraying.
- Stainless steel 316 GMP design with high polish mirror inside finish.
- High resistive meter for sensing automatic powder or liquid spray for automatic drug loading.

# HOTMELT EXTRUDER

Umang Hot-melt extrusion (UHME) has been used in the pharmaceutical and food industries since the 90s. In the 1990s, Umang Pharmatech recognized it as a promising technology for enhancing the solubility and bioavailability of poorly soluble actives.

Umang Pharmatech Uncompromising quality.

- Innovative and cost-effective drug delivery
- Enhanced bioavailability and controlled release
- Customer-specific solutions and global support



Umang Hot Melt Extrusion is a continuous process which utilizes either one or two screws housed in a heated jacket. The polymer is melted by the heated jacket and mixed with the Active Pharmaceutical Ingredient (API) by the screw which also forces it through the die, where the polymer cools and transitions back to the solid state. The extruder can be configured with multiple heating and cooling zones. Ingredients can be injected at multiple points along the length of the extrusion barrel, which is usually equipped with ports to accommodate sensors for monitoring the extrusion process. UHME is a very flexible process. Once optimized UHME can achieve high production outputs and can be used for forming a variety of solid dosage forms, including tablets, transdermals, thin films and suppositories.

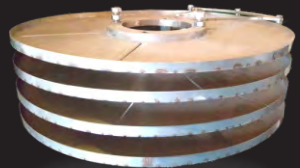
## THROUGHPUT / OUTPUT :

Model	UHME - LAB	UHME - 25	UHME - 40	UHME - 55
Capacity	1 Kgs	3 - 5 kgs/hr	60 - 80 kgs/hrs	250 - 300 kgs/hrs

# CONTINUOUS TRAY DRYER

Rotary Tray Dryer designed for continuous & rapid drying process. Drying is certainly one of the most energy-intensive operations in industries, and as most dryers operate at Low thermal efficiency, the development of model and control system offers an opportunity to improve dryer operation and efficiency.

It is a process in which an unbound and/or bound volatile liquid is removed from a solid by evaporation. Traditional method for drying is a time consuming process whereas the rotary tray dryer enhances the drying speed and ensures uniforming drying of materials. Circle feeder for feeding.



Rotary tray dryer consist of a stack of slowly rotating circular detachable tray with slots assembled inside a closed insulated chamber. The material is fed into the top tray. Hot air is continuously circulated from the AHU. The material is leveled by a leveler. After one revolution the material is wiped on to the next lower tray where it is leveled again. This operation is repeated up to the last lower tray. Forced convection takes place to remove moisture from material placed in trays. The material is cooled and discharged into a collecting vessel..

## THROUGHPUT / OUTPUT :

Model	URTD - 900	URTD - 1200	URTD - 1500
Capacity	40 - 50 Kgs/hrs	60 - 75 kgs/hrs	100 - 120 kgs/hrs

# UMDF - FILM CASTING PRODUCTION LINE



## STANDARD FEATURES :

- Complete integration from one source. Mixing, Homogenization, Film line, Packing line.
- Web length 490mm. Coating thickness from 40 - 1000 microns wet.
- High Coating accuracy.
- Individual temperature adjustment zones.
- Recording of all process related parameters.
- Variable speed of base film.
- Uniform air flow throughout the machine.
- cGMP Construction.
- Liquid dosing system with peristaltic pump.
- Thickness checking on wet & dry film.
- Product temperatures & film temperature measurement.
- Recording of critical process data in 21 CFR part 11 certified software.
- Controls by Allen Bradley and 12.1" IPC by a touch panel control with trends.
- Report on Excel file can be exported to USB to view on computer.
- Equipment can be modified to make patch film of desired size and desired web length.
- Cutting and Slitting line are a part of the complete processing line for oral strips.

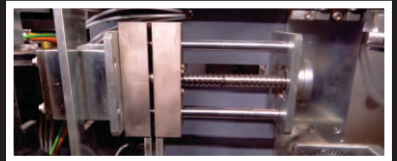
## OPTIONAL FEATURES :

- Cutting line for cutting into small uniform strips & individual strip packing line.
- Homogenizers and mixing tanks for integrations for a complete MDF suite.
- Drying tunnel length can be varied.
- Humidity control for the drying chamber.

## THROUGHPUT / OUTPUT :

Model	UMDF - LAB	UMDF - 25	UMDF - 50	UMDF - 100	UMDF - 200
Capacity	25 strips/min	20,000 strips/day	50,000 strips/day	100,000 strips/day	200,000 strips/day

# INDIVIDUAL & BULK FILM PACKING EQUIPMENT



## STANDARD FEATURES :

- Complete integration from one source. Mixing, Homogenization, Film line, Packing line.
- Unwind roll from backing film & lid film unwinding station.
- Cut strips into precise length.
- Weight strips to ensure proper dosing.
- Detect splices in sachet materials.
- Lot number & batch code, expiry date printing on sachets.
- Character recognition of lot number and expiry date.
- Character recognition or bar code recognition of sachet part number.
- Product loading and Sealing station.
- Thickness detection / presence of film in sachet.
- Cut tear notch in sachet.
- Reject improperly sealed pouches.
- One line Collator.
- Recording of all main parameters.
- Balcony construction, easy to access, load and unload film from packing material from front side.
- Ease to set and operate the packing line with quick and minimum tool changeover.
- Multi-track operations from 2 to 4 line ups.
- Automatic, synchronized pick-n-place mechanism for feeding of strips.
- High quality stainless steel 304 construction with high quality finish.
- Recording of critical process data in 21 CFR part 11 certified software.
- Controls by Allen Bradley and 12.1" IPC by a touch panel control with trends.
- Report on Excel file can be exported to USB to view on computer

## OPTIONAL FEATURES :

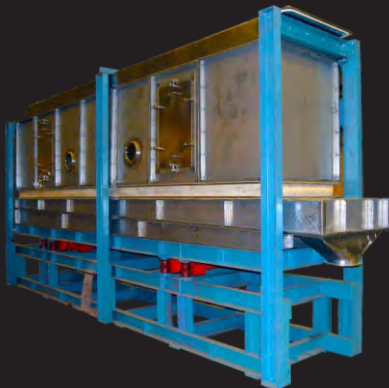
- Cutting line for cutting into small uniform strips & individual strip packing line.
- Homogenizers and mixing tanks for integrations for a complete MDF suite.
- Customer required designs and style / colors for printing.
- Special style / shape for packing each film / multiple films.

# VIBRATORY FLUID BED DRYER WITH SOLVENT RECOVERY

Vibratory dryer is the continuous drying range that builds on the proven Umang technology and its benefits. Similar design of Vibration distribution plate and vibrators ensures that process and validation wise there is no difference to the drying process. This unique design of process plate, and vibrators makes the not only a perfect drying system but also an ideal machine.

The outstanding feature of the Vibratory dryer range is the integrated and CIP optimized design. Connections, cabling and supplies are completely integrated, covered and sealed so the outside of the machine is smooth and very easy to clean. The innovative discharge valve design and optimized seals inside the bowl allow for CIP. As a result of this the our Vibratory dryer is highly flexible, quick product changeover increases productivity and cost effectiveness.

The Vibratory dryer ranges from 25 to 1200 liters / hr. drying capacity featuring through the wall design and movable head, allowing operation with platform and dust-free discharging via a linked mill directly into an IBC. The Vibratory dryer can be stand-alone or linked to a fluid bed to form an integrated system.



## STANDARD FEATURES

- Identical distribution and vibration configuration.
- No seals in direct contact with the product
- No seals in direct contact with the product
- Perfect cGMP-design: smooth covering, no external tubing and piping allowing easy cleaning
- Completely integrated full opening side discharge: perfect discharge of difficult products
- Through the wall installation: minimum space required in GMP area
- User-friendly operator-machine interaction via graphical operator panel 12" Industrial PC software with Process + range of software which helps interlinking all plant equipments to a single system.
- Flexibility (processes and products) for wet granulation.
- Continuous working filters.
- Various plate configurations.
- High capacity blower.
- Optional: Solvent recovery system as per solvent / product needs.

UCFD-300 is used for drying of granules / pellets in Fluid Bed. This machine has been accommodated with blowers, vibrator and filter for fluidization. The airflow line is fitted with pre-filter, Hepa filter and electrical heaters to condition the inlet air to the processor.

Vibratory fluidized dryer consist of vibrating tray conveyor where hot gases from the chamber will flow through the holes within the tray and come in contact with the materials to be dried. The tray area is big enough to tolerate constant flow of material through the bed and passed along the deck with a low depth on the tray. The vibrations to the deck are directed in vertical component to assist in fluidization of the material whereas the horizontal component of the vibration, support in transporting materials along the tray. The filter bag is a format part and the porosity of the same to be selected with reference to the particle size of the product.

The machine is fully automatic and controlled by Siemens make PLC. The process variables can be adjusted to account for changes in the output characteristics of the product. Production capacity of these pieces of equipment is 300 kg/Hr.

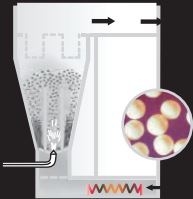
# FLUID BED COATER

## 1 LITRE FLUID BED BOTTOM & TOP SPRAY (MINI LAB)

Mini - Lab is a table-top fluid bed for laboratory use, sized for product volumes from 100 ml to 700ml. It is ideal for handling fine powders, pellets, granules, crystals and also tablets.

## 2 LITRE FLUID BED BOTTOM, TOP SPRAY & ROTOR (UFBM-1)

## 6 LITRE FLUID BED BOTTOM, TOP SPRAY & ROTOR (UFBM-3)



A suitable liquid is sprayed from the bottom (tablets, Pellets, etc) ensuring uniform coating. Multiple air distributors, wurster & different spray nozzles are available as key features enabling various product applications.

The Umang Fluid Bed Multiple(UFBM)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.

### PROCESSES :

- DRYING : Top Spray.
- PARTICLE COATING : Bottom Spray (>50 microns).
- GRANULATING : Top Spray, Rotor Granulating.
- PELLETIZING : Top Spray, Bottom Spray, Rotor Processing.
- COATING : Top Spray, Bottom Spray, Rotor Coating.

## PRODUCTION SCALE WURSTER COATER



Fluid Bed Coating is the new FAST COATING WURSTER range that builds on the proven Umang Technology and its benefits. The design of in-line removable nozzles, and continues working air purging Filters makes it a unique bottom spray coating machine. This unique design of the distribution plate and nozzles make it ideal machine for the fast and uniform coating application on micro pellets, Pellets, Granules & Tablets.

### STANDARD FEATURES:

- Liquid dosing peristaltic pump by speed & volume, load cell based controls.
- FAST COATING(FS) distribution plate for wurster coating with in-process removable nozzles.
- Perfect cGMP-design smooth covering, no external tubing and piping allowing easy cleaning .
- Continues working filters with pneumatic air purging arrangement.
- Through the wall installation : minimum space required in GMP area.
- Flexibility (Processes and products) for spheronization or pellet line/pelletization process.
- Fully integrated with Allen Bradley PLC controls and 12.1" IPC (21 CFR part 11 certified)
- Critical process data recording like temperature, airflow, humidity, pressure drop, etc.
- 2 bar and optional 10/12 bar designs available.
- Organic solvent processing with flame proof components available as optional supply.

### THROUGHPUT / OUTPUT :

Model	UFBM -1	UFBM - 3 / 5	UFBM - 15 / 30	UFBM - 60	UFBM -120 (3 wurster)	UFBM - 300 (5 wurster)
Capacity	0.5 - 1 kgs/batch	2 - 5 kgs/batch	10 - 30 kgs/batch	60 kgs/batch	180 kgs/batch	200 - 450 kgs/batch

Umang was inception in the year 1982, with an objective to serve the clients with all kinds of equipments and accessories under one roof. Within a very short span of time, we succeeded to be the most reliable brand name in the market supplying equipments and solutions to the Pharmaceutical industry for Pelletization and granulation solutions.

In 2007, the company ventured into solutions for Personal care industry majorly focusing on Oral care products, giving encapsulated ingredients for cooling applications. In 2009, the company further integrated it self to give solutions for Bakery and food applications like Chewing gum, mouth dissolving films etc. Today the company has three major divisions : Personal care, Bakery and food ingredients, Pharmaceutical division for innovative dosage form development. Innovative products and technology is the strength of our brand giving start to end encapsulation solutions.

## Pharmaceutical & Nutraceutical



Encapsulation solutions for Pharma industry, technology like SR, IR, Pulsed, Edible films, Neutral Pellets, Sugar, MCC, Tartaric, Lactose, Manitol, Starch, Calcium Carbonate, etc.

### Websites:

[www.umangpharmaceuticals.com](http://www.umangpharmaceuticals.com)  
[www.pharmaceuticalpellets.com](http://www.pharmaceuticalpellets.com)  
[www.pharma-spheres.com](http://www.pharma-spheres.com)

## Personal Care & Home Care Division



Encapsulation of oils, fragrance, flavors, actives, extracts, vitamins, etc. & Visual effects for all kinds of Home & personal care products, with customization as per customer needs.

### Websites:

[www.umangpharma.com](http://www.umangpharma.com)  
[www.cosmeticbeads.com](http://www.cosmeticbeads.com)

## Our Production Facilities



## CNC Manufacturing Compatibility



## Our Workshop



**UMANG**  
encapsulation solutions

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