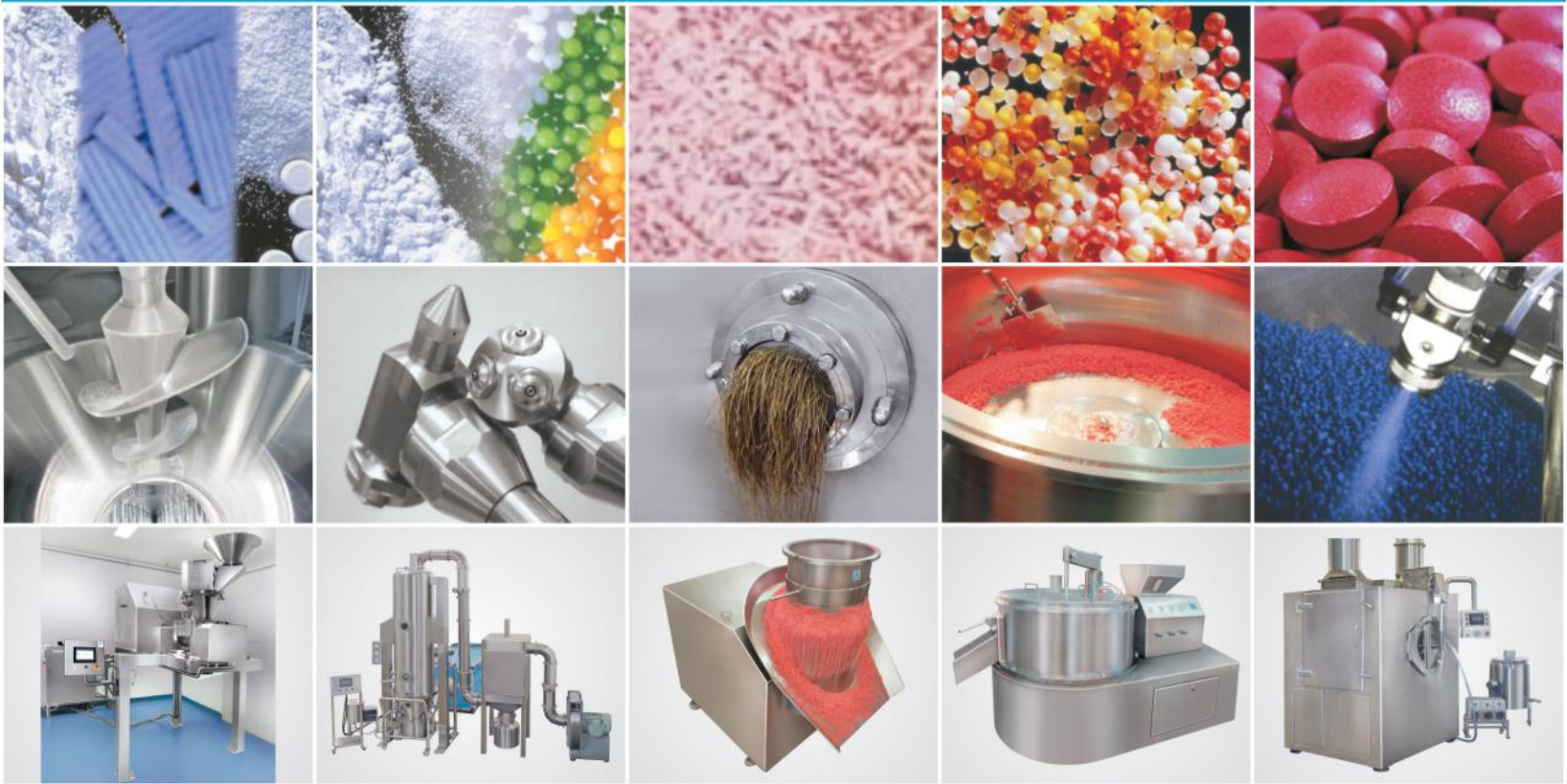




*interesting engineering for life..™*



# GRANULATION - PELLETS - COATING

**Prism Pharma Machinery®**

An ISO 9001 - 2015 Certified Company



### Greetings,

Prism Pharma Machinery founded in 2003 and has been manufacturing process equipments for process of Powder, Liquid & Semi Liquid in application in Pharmaceuticals, Biotech, Nutraceuticals, Cosmetics, Foods, Dairy, Bakery, Confectionery, Agro Chemical, Chemicals, Herbals, Paints, Ceramics & Catalysts for production, pilot & lab scale batch size.

Prism Pharma Machinery have wide range of equipments for processing for drying, granulating, mixing, milling, blending, tableting, coating, pelletizing, homogenizing, material conveying & cleaning as well as process integration and process automation service. Prism focuses on specialized mechanical engineering, especially process engineering and automation engineering by applies innovative technology approach and quality standard. We obtained the ISO 9001:2015 certificate and CE certificate for our products.

We sincerely would like express our thanks to our customers for supporting and affection. Prism has been and will be working more closely with all its precious customers and partner companies, keeping deep in mind the fact that sharing efforts makes sharing fruits.

Thanks you.....

Prism Pharma Machinery



# Starch Paste Preparation Kettle



## Starch Paste Preparation Technik

### Application & Process :

The paste kettle is designed for preparing paste / starch / binder solution for making granules for tableting plant. It has a universal application resulting in uniform melting of starch.

The kettle is consist of base structure, jacketed & insulated product container and tilting unit. The product container is designed with conical bottom with jacket for heating & insulated. Kettle can be provided with anchor type stirrer for paste mixing with variable speed option.

### Salient Features :

- Design is cGMP-Current Good Manufacturing Practices compliance.
- Capacity available in 50 Liters to 300 Liters.
- All contact parts AISI 316 & non contact parts AISI 304.
- Product Bowl with Jacketing and Insulation for heating.
- Tilting unit for unloading.

### Optional Features :

- Heating Option: 1. Steam Heated 2. Electric Heated.
- Temperature controller with sensor.
- Anchor stirrer with variable speed drive.
- Pillar type design with movable container.

# Fluid Bed Equipment- Top Spray Granulator / Bottom Spray Pellet Coater

## High Precision Fluidize Granulation & Pellets Coating Process Technology

### Application & Process :

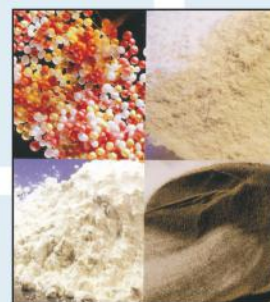
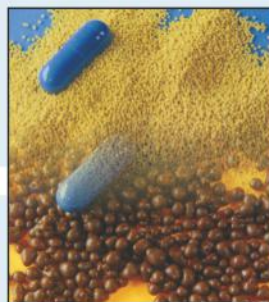
Prism Fluid Bed Processing involves drying, cooling, agglomeration, granulation and coating of particulate materials. It is ideal for heat sensitive and non heat sensitive products in pharmaceuticals, biotech, nutraceuticals, cosmetics, chemicals, foods, dairy, confectionery, agrochemicals, herbals & detergents Institutes.

### The Fluid Bed Processor with Top spray system for Agglomeration and Granulation Process

The process is used in fluid beds to form granules from a fine powder. The fluidized powder is wetted with binder fluid by using top spray system. The top spraying system provided with spraying nozzle and precise dosing peristaltic pump. The fluidized powder is wetted until liquid bridges are formed between particles. Segregation of powder doesn't take place as different powder is glued together on a micro scale. Since there is no impinging force in fluid bed equipments the granules are weak and having good solubility. Once the granules are made they are dried in the equipment using hot air. This technology used for formed granules for tablet, capsule, dust free process, free flow properties, good dispensability and excellent solubility due to porous structure.

### Fluid Bed Equipment with Bottom Spray Wurster Coater for Granules Coating or Pellet Coating

This process is used to apply a coating to the granules or pellets & known as wurster coater. Spray is done inside & from bottom of a hollow pipe. Pellets enter from bottom in small quantity in hollow pipe than atomize particles are passing by spray gun on pellet it gets layer and orderly manner quickly moving upward in pipe to avoid agglomeration. Once pellets are outside the wurster compartment, they move up fluidize gets heat & dry and then downward in compartment where they dry and move for another layer of coating. Since the movement of the particle or pellets inside the wurster chamber totally controlled in ensures uniform.



**Salient Features :**

- Design is cGMP with product contact parts AISI 316.
- Single pot technology for mixing, granulating, drying & pallet coating.
- Easy mechanism to change from process of granulation to coating.
- Top spraying system for granulation.
- Wurster coater-bottom spraying system for pallets and granules coating .
- Precise flow rate spray system with atomized spray gun and peristaltic pump.
- Fluidization controls by air flow of blower by VFD.
- Sophisticated PLC controls with HMI touch screen.
- Pneumatic controls seals & filter bag shaking.
- Inlet Air handler with air filter- micro and HEPA and heat exchanger.

- Exhaust blower with option of dry or wet scrubber assembly.

**Safety futures :**

- Safe earthing, explosion vent, interlocked air pressure, Interlock sealing system, Interlock spraying system and overload protection.

**Option Features :**

- Selection for top spray or bottom spray or combo model.
- Double scan inlet air AHU, HEPA filtration, steam or electric heater, solid flow detection in exhaust air, silencer at exhaust blower, wet or dry scrubber at exhaust, differential pressure indicator, CIP/WIP system & explosion proof motor.
- SCADA System with 21 CFR part 11 complience.



Filter bag assembly



Exhaust Air filter assembly



Inlet air handling unit



Quick released clamp assembly at product container:

**Technical Specifications**

Model	PFBE - 30	PFBE - 60	PFBE - 120	PFBE - 200	PFBE - 300	PFBE - 500
Working Volume in Liter-Top Spray Batch Capacity in Kg	80 Liter 25-30 Kg	155 Liter 50-60 Kg	410 Liter 100-120 Kg	510 Liter 180-200 Kg	1025 Liter 270-300 Kg	1320 Liter 400-600 Kg
Working Volume in Liter-Wurster Batch Capacity in Kg	40 Liter 15-20 Kg	130 Liter 25-50 Kg	360 Liter 50-70 Kg	410 Liter 60-100 Kg	825 Liter 75-150 Kg	1140 Liter 175-300 Kg
Drying Temp in ° C	30-85 ° C	30-85 ° C	30-85 ° C	30-85 ° C	30-85 ° C	30-85 ° C
Motor in HP	10 HP*	15 HP*	25 HP*	30 HP*	40 HP*	50 HP*
Air Flow m <sup>3</sup> /hr.	1600	2800	4000	6200	7500	9500
Diameter of filter Housing in mm	600	900	1200	1400	1600	1800
Approx overall Height in mm	3200	3800	4200	4500	5000	5600
Electric Heating Load in Kw	18 Kw*	36 Kw*	54 Kw*	-		
Steam Consumption in kg/hr	80 kg/hr	135 Kg / hr	180 Kg / hr	300 Kg / hr	430 Kg / hr	515 Kg / hr
Compressed Air Consumption in CFM	40	45	80	85	150	195



CIP spray nozzle

\*' Value can be change as per material and AHU to machine distance

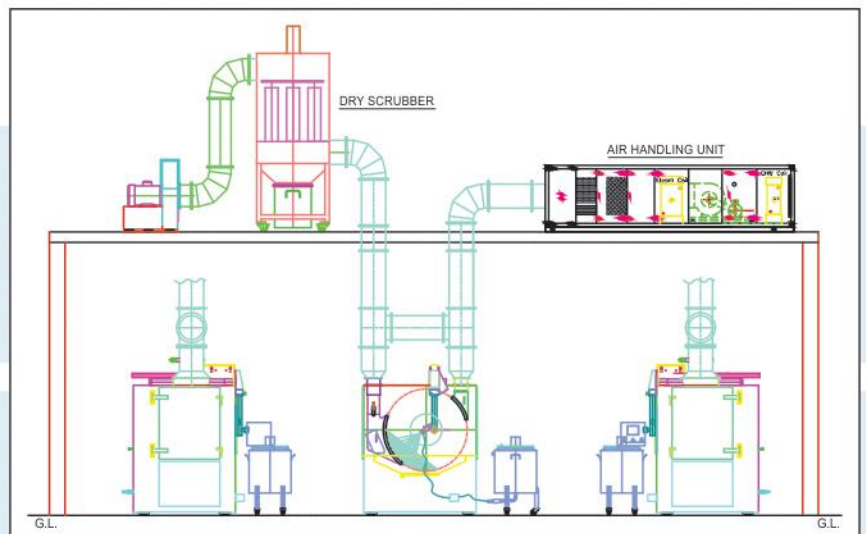
## High Efficiency and Intelligent Automatic Tablet Film & Sugar Coating Technik

### Application :

The Prism's advanced high efficiency automated tablet coating machine is mainly used in pharmaceutical and food industries. featuring mechatronics and conforming to the requirement of cGMP. It is a high efficiency, energy saving, safe and clean equipment for film and sugar coating of tablets, pills, pallet and candies with aqueous, non aqueous, enteric, non enteric film coating and sugar coating.

### Process :

The tablet to be coated make continuous complicated orbital motion the closed rotating drum under the action of a streamline of baffles. During the motion coating medium automatically sprays according to the technological process and rational technological parameters, at the same time hot filtered air supplied under a negative pressure. The hot air penetrates through the tablets core layers and is discharged from the bottom of the layers, so that the coating medium sprayed on the surface of the tablet cores will dry rapidly and evenly, thus forming a solid and smooth surface film on tablet. The whole process is finished under the automatically by PLC controls with touch screen Interface.



**Salient Features :**

- Design is cGMP with product contact parts AISI 316.
- Tablet film & sugar coating with aqueous, non aqueous, enteric, non enteric.
- Perforated pan with variable speed drive through VFD.
- Rigid structure with wash sink, air plenum front & side door.
- Advanced PLC controls with HMI touch screen.
- Excellent mixing and tumbling by baffles.
- Spray systems with peristaltic pump, atomized spray gun, & solution tank.
- Inlet air handler is with pre filter, blower, dehumidify coil, heat exchanger, final filter & HEPA.

- Exhaust air blower with scrubber for treats air pollution free.
- Tablet discharging through special diverter assembly Inbuilt with
- CIP/WIP system.
- Explosion proof constructions.
- Provision for angle change of spray gun.

**Optional Features :**

- Interchangeable pan & solid pan for confectionery products.
- Wet scrubber & dry scrubber.
- Steam or electric heat exchanger.
- Tablets charging by bin loader.
- SCADA System with 21 CFR part 11 compliance.



Inlet air handler



Peristaltic pump and solution holding tank



Exhaust blower with wet scrubber

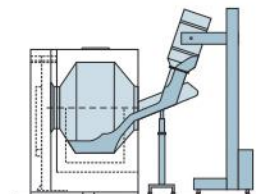


PLC based touch screen controls

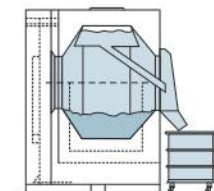
**Technical Specifications**

Model	PAC- 30	PAC- 36	PAC- 42	PAC- 48	PAC- 60	PAC- 66
Pan Diameter – Inch (mm)	30” - 750	36” - 920	42” - 1070	48” - 1220	60” - 1525	66” - 1675
Working Capacity - kg.	30	75	100	150	350	500
Pan Mouth Diameter	250	380	380	400	520	520
Pan Speed -RPM	2 - 10	2 - 10	2 - 10	2 - 10	2 - 10	2 - 10
Main Drive Motor- HP	1	2	2	3	5	10
Inlet Air Blower Motor- HP	1.5*	2*	3*	5*	7.5*	15*
Inlet air - cfm	500	1100	1600	2200	3800	6500
Exhaust Air Blower Motor- HP	2*	5*	7.5*	10*	15*	25*
Exhaust air cfm	900	2000	3000	4200	6000	9000
Spraying Nozzle	2	3	3	4	6	8
Peristaltic Pump Motor- HP	0.25	0.25	0.25	0.25	0.25	0.25
CIP Pump Motor - HP	1	2	2	2	2	2
Steam Consume. kg/hr @ 4 bar	20	60	70	100	140	160
Comp. Air cfm @ 6 bar	20	30	30	55	95	110

\*\* Value can be change as per material and AHU to machine distance



Loading of material (Optional)



Unloading of material



Diagram of working

## Conventional Tablet & Pallet Coating Technik - Sugar & Film

### Application & Process :

Conventional coating machine are used to sugar coat tablets, pallets, pills, candy etc. in for a variety of industries such as pharmaceuticals, confectionery, foods and others. They are also used for rolling and heating beans and edible nuts or seeds.

The product is to be filled inside the pan. During the rotation motion, coating material is sprayed by spraying system according to the technological process and rational technological process. So process materials (product) are coated due to rotating pan. The coating round pot is rotated by variable speed. At the same time hot air is supplied through inbuilt hot air blower system which dries rapidly (heating or cooling) and evenly thus forming a solid and smooth surface.



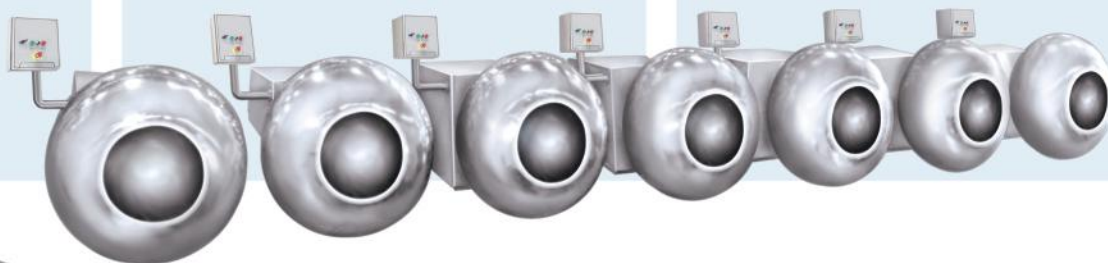
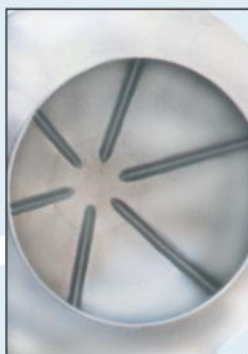


**Salient Features :**

- Design is cGMP with product contact parts AISI 316/304.
- Conventional coating system for manual film coating and sugar coating.
- Machine is designed with fabricated structure fitted with SS enclosure which makes simple, cleanable outside covering and mounted on anti vibration pad.
- Pan mounting degree is 30° on direct to gearbox shaft.
- Closed powerful pan drive with reduction gearbox and motor by variable speed pulley.
- Movable hot air blowing system with electric heater.
- Can be provides spraying system.
- Easy to replace polishing pan and other size coating pan.

**Optional Features :**

- Solid pan / peligrli pan for confectionery with large volume.
- A.C. frequency drive for pan.
- Fixed or detachable type baffles.
- Interchange different size pan & polishing pan.
- Atomized spraying system with spray gun, peristaltic pump, solution tank & controls.
- Flame proof electrical.



**Technical Specifications**

Model	PCP-24	PCP-30	PCP 36	PCP-42	PCP-48	PCP-60	PCP-72
Pan Size	24 "	30 "	36"	42"	48"	60"	72"
Loading Capacity in Kg	15	45	80	100	150	210	300
Pan Angle	30°	30°	30°	30°	30°	30°	30°
Pan RPM	4 to 12	4 to 12	4 to 12	4 to 12	4 to 12	4 to 12	8 to 12
Pan motor HP	1.5	1.5	1.5	2.0	2.0	5.0	7.5
Blower motor HP	1.0	1.0	1.0	1.0	1.0	1.5	2
Blower capacity CFM	150	150	150	150	150	350	400
Heater Capacity in Kw	6	6	6	6	6	6	9

## Roll Compactor - Dry Compaction

### Powder Dry Granulation Process

#### Application & Process :

The Roll Compactor machine is used for increase bulk density, making granules, dust free processing and particle size of ingredients in pharmaceuticals, foods as well as chemicals industry for densification and granulation of powder.

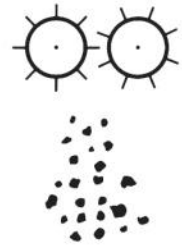
The material in form of powder passes through the two counter rotating rolls of roller compactor under very high pressure. As the volume decreases through the region of maximum pressure, the material is formed into a solid compact sheet or flakes of ingredients. These flakes or compact sheet of ingredients are reduced in size to obtain the desired grain size. The machine takes extra care to prevent the generation of fine during this process.



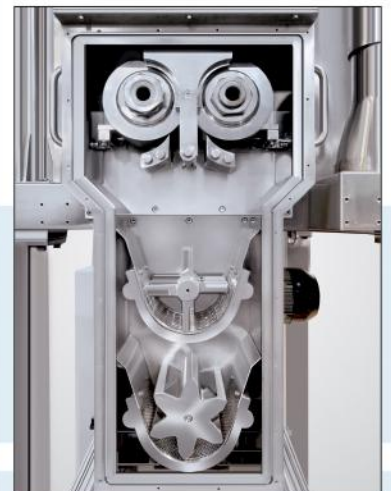
Compacting



Briquetting



Granulating



**Salient Features :**

- Design is cGMP with all product contact parts AISI 316.
- Available cantilever rolls mounting with milling & granulator.
- Available rolls mount between two walls.
- To achieve maximum bulk density and output by various type of rolls, 1. Plain 2. Corrugated 3. Knurled.
- Hydraulically operated uniform force distribution system provides for produce granules equal quality.
- A C Frequency variable speed drive for auger.
- Top and bottom scrapper of the roll to scrape off powder sticking on the roll.
- Enclosed drive with heavy gear drive for rolls and auger / feeder.
- The hopper and auger/ feeder assembly is lifted by hydraulically for easy cleaning & dismantling.

**Optional Features :**

- Uniform force system by hydraulically for roller.
- Water cooling system for rolls & hopper.
- Inline granulation with vacuum powder loading, granulator & sifting.
- Vacuum deaeration system.
- PLC controls with HMI touch screen.
- Flame proof electrical.
- AC frequency drive for roller.
- SCADA System with 21 CFR part 11 compliance.

**Safety Features :**

- Limit switch for chamber, slip clutch at drive of auger.
- Overload relay & emergency stop.



Feed screw



Roller assembly



Roller drive



Hydraulic pressure assembly

**Technical Specifications**

Model	PRC-200 / 50	PRC-200 / 75	PRC-200 / 100	PRC-200 / 150	PRC-200 / 200
Output - kg / Hour	20 to 60	75 to 100	100 to 250	100 to 350	150 to 500
Maximum Roll Force	15 ton	15 ton	15 ton	25 ton	25 ton
Roll Diameter in mm	200	200	200	200	200
Roll Width in mm	50	75	100	150	200
Roll speed (Step pulley Drive) RPM	5 to 25	5 to 25	5 to 25	5 to 25	5 to 25
Feed Screw Speed by VFD -RPM	10 to 60	10 to 60	10 to 60	10 to 60	10 to 60
Roll Drive Motor HP/ KW	5 / 3.75	5 /3.75	7.5 /5.25	10 /7.5	15 /10
Feed Screw Drive Motor HP/KW	2 /1.5	2/1.5	3 /2.25	3 /2.25	5 /3.75
Charging Height in cm	166	170	182	184	184
Discharge height in cm	32	32	32	61	61



Feed screw drive



### Uniform Kneading, Mixing and Extruding Process

#### Application Process :

Extruder is used to convert wetted powder / dough material into uniform size extrudes / granules with addition of binders. applications are mainly pharmaceuticals, chemicals, agro chemicals, ceramics, herbals, catalysts, food, sugar industries etc.

- Forming pharmaceutical extrudates prior to spheronization for controlled release applications.
- Production of water dispersible and water soluble granules of agriculture chemicals.
- Granulation of confectionary products prior to Tableting.
- Densification of organic chemicals.
- Formation of free-flowing vulcanization compounds.

#### Process: Axial Extruder :

Axial Press extruder has either single or twin screws, depending on the output required, which transfers the materials to the flat die. Extrusion takes place at the face of the mesh. The thickness of the die can be provided as different thickness to deliver a range of compressive energies. The axial die perforation size range available from 0.7 to 5 mm with varying thickness up to 5 mm.

#### Process: Basket Extruder :

Basket Extruder provides the lowest pressure method of wet extrusion combined with moderate shear. To form granules from 0.5 to 5 mm in diameter our basket extruders provide a very versatile means of wet extrusion. They produce consistent extrudate from wetted powders at laboratory through multiple ton per hour extrusion capacities. In the upper chamber of our basket extruders the counter rotating internal breaker bar system breaks larger clumps of wetted feed material to allow gravity to convey the wetted mass down into the bottom extrusion rotor arms which, in turn, densify the material and extrudes it through the screen basket. formed extrudates are discharged without damage by our proprietary discharge chute design. Product extruded with basket extruders has a stable structure with a large surface area which provide the optimum pliable properties for spheronization.



**Salient Features :**

- Designed as per cGMP & Non GMP standard model.
- Contact parts in AISI 316 & AISI 304 as desired by customer.
- Capacities from 50 Kg to 5000 Kg industrial productions.
- Different models in extruders such as single screw axial, double screw axial & basket.
- Length of extrusions is adjustable.
- Up to 96% uniformity (substantially formulation dependant).
- Change of extrusion diameter/ Pellet size by changing die & sieve.

**Optional Features :**

- A.C Drive with digital RPM indicator for screw.
- Direct In line with spheridizer.
- Jacketed chamber for cooling and heating.



**Technical Specifications (Axial Extruder)**

Model	No. of Screw	Discharge	Capacity-kg/hour	Motor- HP	Extruder size mm
PSEXF-50	Single	Front	5 -20	2	0.5 to 10
PSEXF-75	Single	Front	20-50	5	0.5 to 10
PDEXF-75	Double	Front	50-100	7.5	0.5 to 10
PDEXF-100	Double	Front	100-300	10	0.5 to 10
PDEXF-130	Double	Front	300-1000	15	0.5 to 10
PDEXF-180	Double	Front	800-3000	30	0.5 to 10
PDEXF-230	Double	Front	1000-5000	40	0.5 to 10
PSEXS-50	Double	Side	20-50	5	0.5 to 3
PDEXS-75	Double	Side	50-100	7.5	0.5 to 3
PDEXS-100	Double	Side	100-300	10	0.5 to 3
PDEXS-130	Double	Side	300-1000	15	0.5 to 3
PDEXS-180	Double	Side	800-3000	30	0.5 to 3
PDEXS-280	Double	Side	1000-5000	40	0.5 to 3



**Technical Specifications (Basket Extruder)**

Model	Output-Kg/hour	Sieve Dia. mm	Motor HP	Products Size
PBE-150	5 to 50	150	2	0.5 to 3
PBE-250	25 to 200	250	5	0.5 to 3
PBE-450	250 to 1000	450	7.5	0.5 to 3
PBE-600	500 to 3000	600	15	0.5 to 3

## Spherodizer - Pelletizer

### Uniform Pelletizer Process

#### Application & Process :

This machine is particularly designed for pharmaceutical, food and chemicals Industries. Spherodizer enables uniform coating and accurate free flow filling into capsules drug applications within the pharmaceuticals industry require consistent smooth surface particles, with a narrow size distribution. Spheronization helps to eliminate dust within the agro-chemicals, pigments, and catalyst industries. This can reduce the risk due to toxic, environmental, and explosive hazards. It also improves processing consistency and productivity by using consistent free-flowing & dust free products

- Limit dusting and fines generation
- Produce granule with a smooth surface
- Densify the surface for stability
- Minimize coating material necessary
- Increase flow ability
- Increase bulk density

Feed extruded material to the spherodizer falls onto the high speed rotating chequered plate within the walls of cylinder of spherodizer. This plate contains many small sharply edged pyramids which cut the feed granulates to length at approximately 1 to 1.5 times their diameter. Centrifugal and gravitational forces create a mechanically fluidized ring of these particles which are impacting not only the plate but also each other and the walls with great velocity. With these impacts, they are reformed into spheres with a slight surface densification. Fines which were generated during the process are worked back into the spheres themselves leaving a very low dusting process with spheres.



**Salient Features :**

- Designed as per cGMP & Non GMP standard model.
- Contact parts in AISI 316 & AISI 304 as desired by customer.
- Capacity from 1 Kg to 100 Kg batch size for Industrial production.
- Chequered plates are available with different pitch for variable size of pellets.
- AC Frequency variable drives for chequered plate.
- Precise clearance between bowl and plate.

**Safety Features :**

- Total drive transmission system enclosed
- Limit switch installed in the top lid ensure lid is closed
- Air pressure switch installed to ensure pressure is in limit.

**Optional Features :**

- Spray system for coating pellets checker plate lifting arrangement scraper arrangements.



**Technical Specifications**

Model	Output Kg/Batch	Motor HP.	Compressed Air- CFM	Disk Speed
PSPD-7/5	0.05	0.5	1	50-2800
PSPD-15	0.05 to 0.25	1	2	50-2800
PSPD-25	0.2 to 1	2	4	50-1400
PSPD-38	0.5 to 3	5	5	50-1400
PSPD-50	3 to 10	5	5	50-1400
PSPD-70	5 to 20	7.5	8	50-1000
PSPD-90	20 to 50	10	10	50-500
PSPD- 100	40 to 80	15	12	50-400
PSPD-120	30 to 100	30	15	50 -250

## Prism's Global Presence

Middle East Country	African Country	USA & Latin USA Country	Asian Country	European Country
UAE	Algeria	United state of America	India	Australia
Saudi Arabia	Nigeria	Mexico	Afghanistan	New Zealand
Egypt	Kenya	Peru	Nepal	Russia
Turkey	Malawi	Chile	Bangladesh	England
Jordan	Ghana	Ecuador	Malaysia	Belarus
Oman	Congo	Colombia	Singapore	Belgium
Iran	Uganda	Morocco	Thailand	Northern Poland
Iraq	Ethiopia	El- Salvador	Vietnam	Sweden
Syria	Tunisia	Canada	Hong Kong	Ireland
Yemen	Zambia	Cuba	Myanmar	Finland
Lebanon	South Africa		Sri Lanka	Bulgaria
			Indonesia	Netherland



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