

1

2

3

4

5

6

7

Layers & more



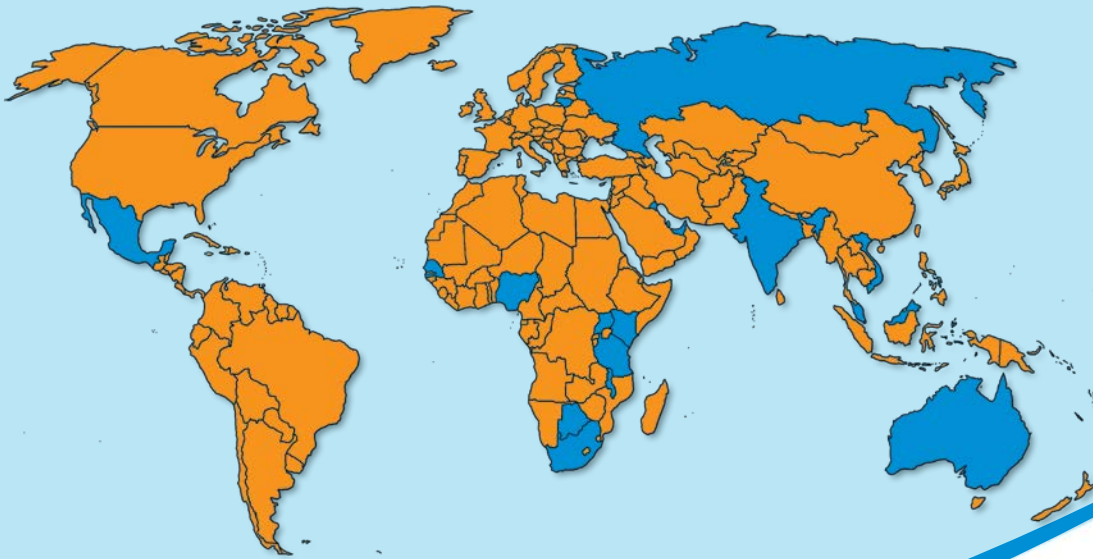
***Sustainability through
Customisation...***



**MAMATA
MACHINERY**
VALUE FOR TRUST

Leadership in Blown Film Technology

MAMATA presence in 20 Countries and counting...



MAMATA has evolved itself as a global player by adding a country every year since last 20 years...

Historical Milestones

2012-2018	1 st 7 Layer Line Export to Nigeria
	100 th Line Supplied
	1 st 3 Layer Line Export to Mexico & Tanzania
	Vegaflex (Advantage) Launched at PLASTINDIA 2012
	Mamata becomes Sole Owner of JV
2007-2012	1 st Wider width 2895 mm Ultra High output 800 kg / hr 3 Layer Line installed
	50 th Line installed
	1 st Line Supplied to Australia
	1 st Wider width 2375 mm Higher output 500 kg / hr 3 Layer Line Installed
	1 st 3 Layer Line Exported to Europe
2001-2007	25 th Line Supplied
	1 st Ever 7 Layer Line installed in India
	1 st Line Export to West Africa & Russia
	1 st 3 layer line Export to Far East & Middle East
	10 th Vegaflex Concept Line Sold within One Year of Launch
1997-2001	Introduction of Vegaflex Concept Line - A New Standard of Excellence for Industry to Follow
	1 st Ever 5 Layer SCD Line Manufactured & Installed Successfully in India
	1 st JV Line Delivered
	50:50 Joint Venture Between Mamata Machinery Pvt. Ltd., India & Brampton Engineering Inc., Canada

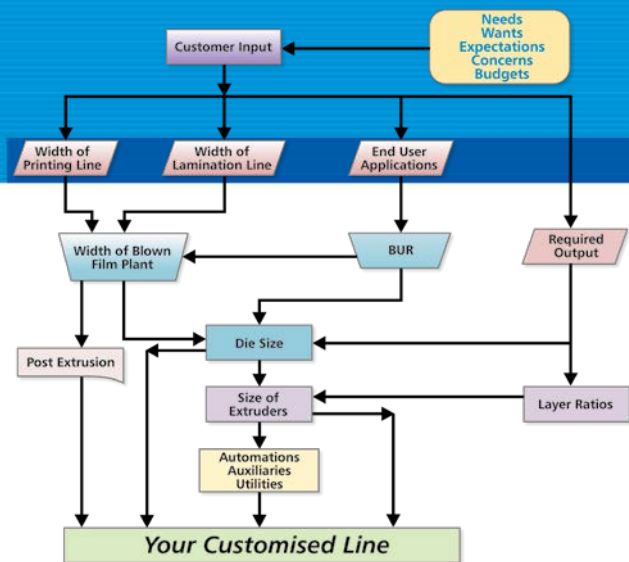


Application based Customisation

With ever increasing applications of Blown Films for variety of uses and ever increasing competitive pressures, it has become mandatory to derive optimum results from your blown film line. Only way to do this is to **critically analyse** your requirements and insist on a line configuration that is tailor made for your needs of today and tomorrow.

Call our experts and have a dialogue to know :

- ◆ What are various applications
- ◆ How many layers are suitable to you
- ◆ What width is best suited to you
- ◆ How much output is technically viable
- ◆ What size of Die is required
- ◆ What type of layer ratio is suitable
- ◆ What level of automations will be optimum
- ◆ Techno-commercial viability of all the above



Road Map to Customisation

With over 20 years of experience solely in co-extrusion blown film technology, we can help you critically analyse your needs and deliver a optimal solution that is custom made.

Configure a Line to produce what you want to sell...



M-CAT MAMATA Critical Analytical Tool

From Concept To Commissioning

“M-CAT” to derive the best configuration for your new blown film line based on your Needs, Wants, Expectations, Concerns & Budgets.

All photographs are shown as a illustration only to understand blown film applications.





The right selection of width of the post extrusion equipment of the Blown Film Line will take care of matching widths of converting equipment like Printing, Lamination, Slitting, Bagging / Pouching machines etc.

The quality of film roll will decide the success of end products.

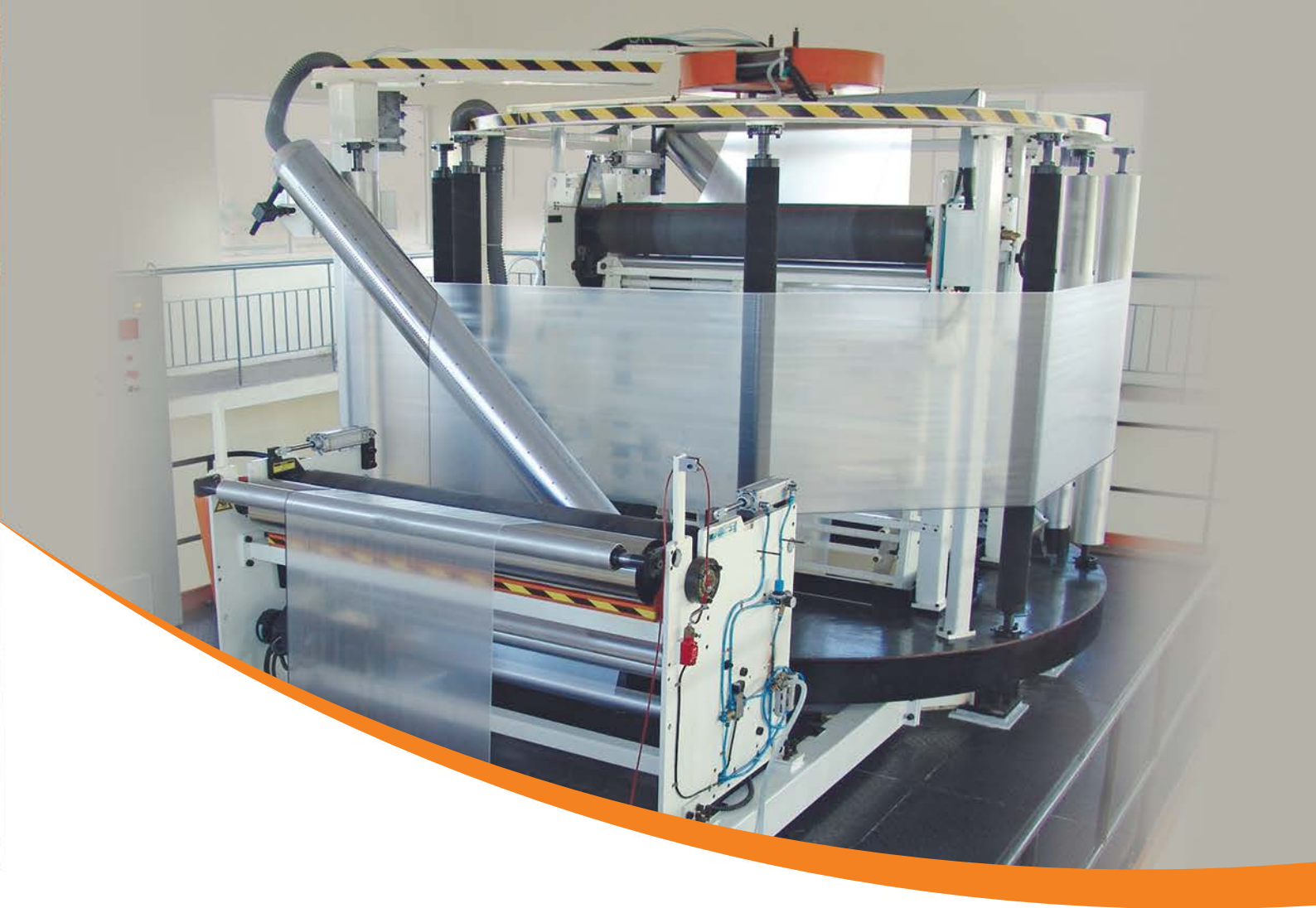
Surface Winders

Distinguishing Features :

- ✓ Fully automatic roll change over
- ✓ Variable surface pressure between the wound roll and the drum allows roll hardness to be precisely controlled
- ✓ Full width, knife guard, incorporating safety interlocks with the cut off knife
- ✓ Digital Length counter for warning
- ✓ Cut over sequence monitored through a PLC
- ✓ Full emergency stop system
- ✓ Longer Guide Beds to unload wound roll

Optional Features :

- ✓ Static Eliminator bar
- ✓ Taper Tension controls
- ✓ Full- roll unloading allows roll to be lowered to floor level hydraulically
- ✓ Trim re-winder unit
- ✓ Hoist for empty air shaft loading



The flatness of the film rolls will be decided by the quality of gauge randomization.

Haul Offs - Vertical & Horizontal

MAMATA offers two choices for Haul Offs - Vertical or Horizontal type for gauge randomization each having their own advantages.

Vertical Oscillating Haul Off :

Provides the provision to make film path vertical through set of turn bars & idler rollers mounted on platform for full 360° oscillation for uniform gauge distribution & excellent roll geometry.

Distinguishing Features :

- ✓ Gauge randomisation at fixed tension between primary nip and additional discharge nip helps to handle thin, stretchable and tacky film
- ✓ Perfectly flattened films through full 360° oscillation
- ✓ Excellent roll geometry

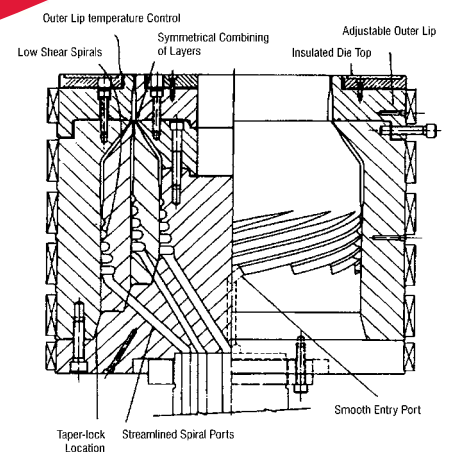
Horizontal Oscillating Haul Off :

Keeps the film path horizontal & achieves differential oscillation of set of turn bars to complete the gauge randomization process.

Distinguishing Features :

- ✓ Gauge randomization by turning the film at 0° to 180° in both directions to achieve full 360° Oscillation
- ✓ Economical system as compared to Vertical Oscillating Haul Off
- ✓ Compact system





For best in class assured lowest film thickness variations.

Spiral Mandrel Dies

Our Die Heads are characterised by selection of the right quality steels with in house computer aided machining with due attention given at each stage of die manufacturing, to ensure production of high quality films with tight gauge tolerances, right gloss and desired mechanical properties.

Distinguishing Features :

Customised die design as per applications

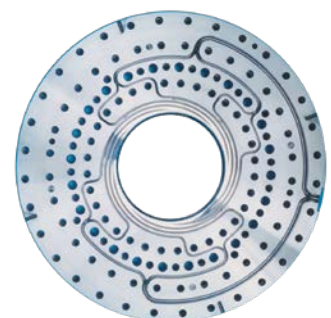
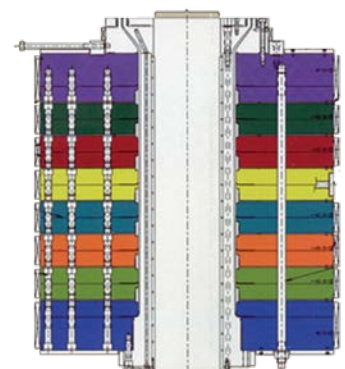
- ✓ Manufactured from AISI 4340 Alloy Machine Steel
- ✓ The Taper Lock Body & Mandrel Assembly Design ensures excellent concentricity between the spiral mandrels and the die body
- ✓ Streamlined Polymer Flow having No Stagnation and Dead Points
- ✓ Capability to handle Critical Layer Ratios
- ✓ Separate inner & outer lip temperature controls to avoid melt fractures

Stackable Co-extrusion Dies

The co-extrusion stack die offers most modular and versatile die design to allow processors to harness the characteristics of a wide range of resins to make structures with the required properties.

Distinguishing Features :

- ✓ Temperature isolation between layers
- ✓ Streamlined melt distribution
- ✓ Easy upgrades due to modular design



Cooling Systems

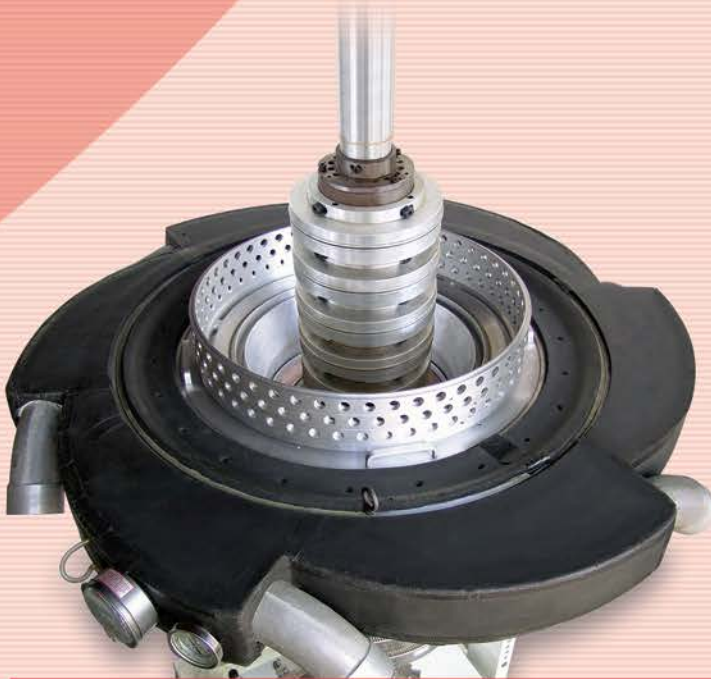
Once die size is decided we have to match the cooling capacity available with combination of Air Ring & IBC.

The Eliminator Air Ring

The air ring technology for the cooling of polymers at its exit and its orientation area to achieve targets for gauge uniformity, out put and physical properties of blown film.

Method of Operation :

- ✓ The primary orifice does pre-cooling
- ✓ The secondary orifice has dual functions
- ✓ Creates a powerful Venturi effect that draws the partially cooled bubble radially outwards to the tip of the forming cone
- ✓ This will thin the melt to improve the thermal conductivity as well as provide the main cooling effects by means of its high velocity
- ✓ The Eliminator's collar provides additional bubble support and increases the cooling efficiency, by simply adjusting the three rows of holes and collar height, the operator can fine tune and lock in the bubble shape



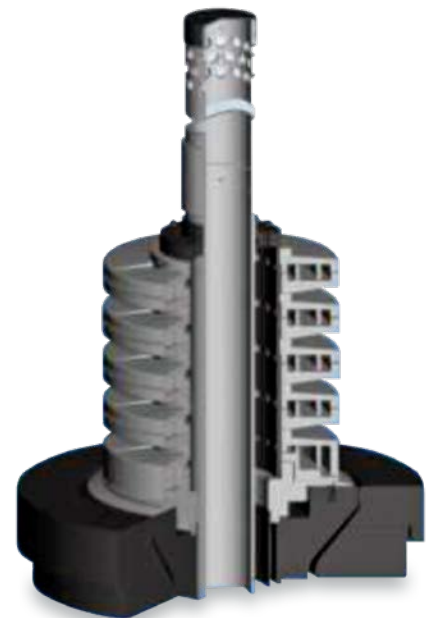
4 + 1 Pancake IBC System Offers Film Processors Maximum Internal Bubble Cooling While Maintaining Ease Of Operation.

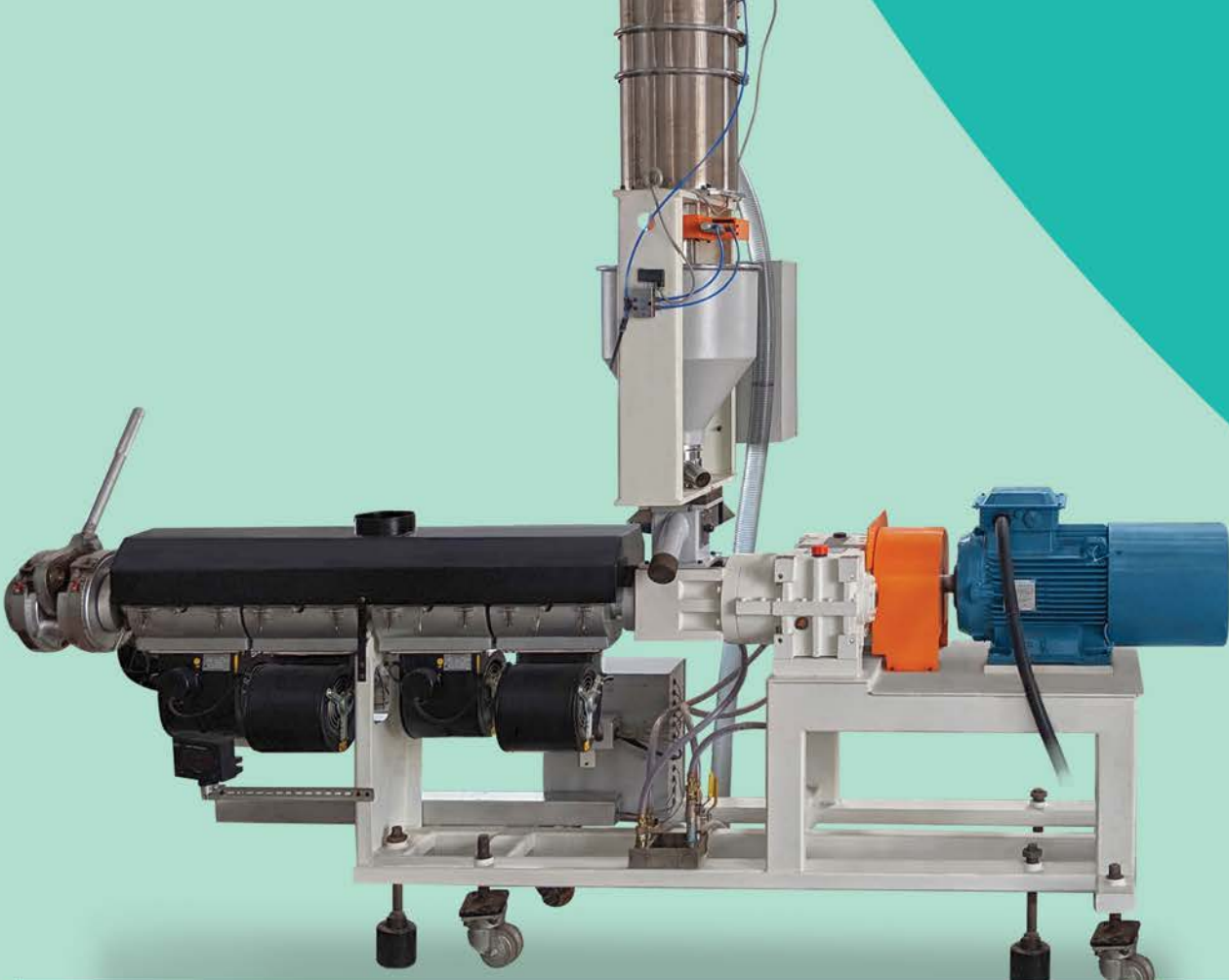
4+1 Pancake IBC System

Method of Operation :

4+1 Pancake IBC System Air Flow adjustments through Five Pancakes maximizes systems efficiency. This system has FIVE independently adjustable orifices :

- ✓ The lower orifice pre-cools and stabilizes weak melt as soon as the polymer exits the Die
- ✓ The adjustable air flow through each set of the other FOUR pancakes allows for a gradual increase in air velocity for maximum heat transfer
- ✓ The air flow regulator plate acts as a by-pass valve allowing overall air exchange rate while maintaining optimum velocity through each pancake
- ✓ A supervisory microprocessor based control system uses ultrasonic non contact sensors to sense the bubble position related to the bubble cage and adjust the flow of cooling air or / and the hot exhaust air in order to maintain the proper bubble size
- ✓ Two separate blowers provide the air into and out of the bubble





The extruder capacity should match output & Layer thickness ratio requirement.

Extruders For All Blown Film Applications

Blown Film Extruders :

The challenge for blown film extruder is to deliver constant torque in a given dynamic situation. MAMATA uses the latest AC vector flux close loop technology along with rugged design Gearboxes to meet this challenge. The customised screws with plain barrel, ceramic finned heaters and high efficiency blowers help in getting best possible quality melt at lowest possible temperature for better quality film at higher outputs.

Feed Screw :

MAMATA specifically selects each screw to match a particular process to provide high extrudate quality at optimum throughput rates.

- ✓ Lower melt temperature increases system throughput rate and provides less thermal degradation
- ✓ Melt Channel Screws provide balanced feed and melting rates
- ✓ The melt channels are sized to flush easily
- ✓ It can deliver high throughput without increase in energy consumption for lower operating costs
- ✓ Improved dispersive and distributive mixing permits a wide blending range

Control :

- ✓ Barrel temperature zones are regulated by a microprocessor-based controllers for accurate temperature control
- ✓ Full PID programs and alarms
- ✓ Available supervisory control packages include remotely programmable and fully integrated line control systems

Gear Boxes :

- ✓ Rugged design gearboxes provide horsepower and torque ratings that surpass the usual standards
- ✓ Hardened and precision-ground gears feature a helical design to ensure years of nonstop production
- ✓ Integrally-mounted thrust bearing assures precise alignment to ensure that the bearing achieves a long working life

Drives :

- ✓ AC vector flux closed loop drives provide optimum energy efficiency and precise control

In today's competitive environment the line configuration is not complete without much needed automation.

Automations for Enhanced Efficiency

MAMATA can offer a wide variety of automation options starting from resin handling to finished roll handling.

Single / Multi Component Gravimetric Blending, Dosing & Extrusion process control

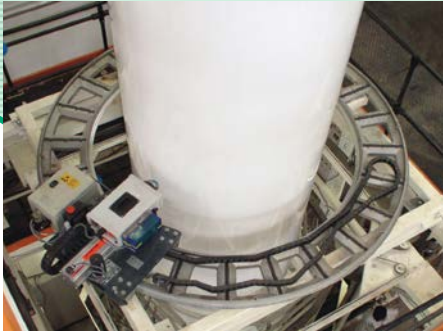
- ✓ The system functions independent of the bulk density variations of the material to be metered guarantying constant quality and repeatability
- ✓ The accuracy considerably reduces the raw material costs, in fact and the ingredients are metered without any wastage.

Online Thickness Control Systems

- ✓ In Segmented Air type system the gauge is controlled through air flow from Segmented Air Ring.

Online Thickness Measurement System

- ✓ Online rapid and accurate measurement of film thickness allows the film production process to be tightly controlled. Thickness can be measured by capacitive / nuclear based devices, contact or non-contact devices, prior to collapsing frame or post primary nip depending upon non-barrier / barrier film nature.



Auto Width Control

- ✓ Provides an instant readout of the actual layflat eliminating the need to wait for the film to reach the winder. Reduces the time required to get bubble on size and helps reduce layflat changes from long term process variations. It helps to make trimless film winding.

Supervisory Control & Data Acquisition System (SCADA)

- ✓ The SCADA system facilitates the total line control from a single point giving the operator the flexibility of easy control and monitoring the complete line performance.

Auxiliaries / Utilities

List of some of the out sourced Auxiliaries / Utilities which can be offered by MAMATA along with the line to facilitate supply of entire line as a package.

- ✓ Web Guides
- ✓ Corona Treaters
- ✓ Chilling Plants
- ✓ Electrical Distribution panel
- ✓ Testing Equipment etc.
- ✓ Complete Turnkey Solution from Concept to Commissioning





Infrastructure

MAMATA has now newly constructed state-of-the-art premises located in Moraiya, Ahmedabad having Special high ceiling bay for assembly of towers and to set up complete lines for demonstration and testing.



Customise your Line from Concept to Commissioning

Monolayer Blown Film Line

Line Width (mm)	900	900	1200	1450	1750
Max. Film Lay Flat Width (mm)	800	800	1100	1350	1650
Extruder (mm)	65	75	75	75	90
Main motor (HP)	60	75	100	100	150
Die Lip Size (mm)	175	200	250	300	350
Max. Output (Kg/hr)*	100 - 120	140 - 160	180 - 200	160 - 180	260 - 280

Vegaflex (Advantage) Pre-Customised 3 Layer Line

Line Width (mm)	900	1200	1450	1750	1950	2135
Max. Film Width (mm)	800	1100	1350	1650	1850	2000
Die Size (mm)	180	250	300	350	375	400
Max. Output (kg/hr)*	120 - 150	150 - 180	210 - 240	250 - 280	270 - 300	280 - 320

MAMATA Customised 3-Layer Lines (with IBC System & Line Automations)

Width of Line (mm)	1625	1875	2125	2375	2625	2875	3125
Winder	Surface Winders up to 3000 mm LFW						
Haul-off	Horizontal Oscillating Haul-off			Vertical Oscillating Haul-off			
Bubble Cage Rollers type	Silicon Sleeve			Carbon Fibre Rollers			
Output Range	250 - 900 kg / hr						
Extruders (mm)	40	50	65	75	90	120	150
Die & Air Ring	250 mm to 850 mm at an increment of 25 mm						
IBC System	4+1 Pancake IBC System with Controls						
Controls	HMI Type			SCADA Type			
Automations	Gravimetric Blending & Dosing System		Auto width Control		Auto Gauge Control		Any other as per request
Auxiliaries & Ancillaries / Utilities / Panel	Web Guide	Corona Treater	Chiller	Compressor & Dryer	Testing Equipment	Others as per Requirements	
Tower	Tower Layout Drawings / Prefabricated Tower						

Note: We Can Also Offer Line Upgradation Package and Complete Turnkey Solutions from Concept to Commissioning.

MEX Barrier Pre-Customised 5 / 7 Layer Line & MEX 5 Layer POD Line

	5 Layer	7 Layer	MEX 5 Layer POD
Line Width (mm)	1200 - 2625	1200-2625	1200 - 2625
Max. Film Width (mm)	1100 - 2500 (Non barrier)	1100 - 2500 (Non barrier)	1100 - 2500
	1100 - 1800 (Barrier)	1100 - 1800 (Barrier)	
Die Size (mm)	175 - 525	175 - 525	250 - 525
Max. Output (kg/hr)*	140 - 500	140 - 500	200 - 550

* Above outputs are for reference only and subject to change depending upon processing conditions.

The details mentioned here by are for reference purpose only and the technical data and specifications given are subject to change without prior notice. Kindly refer our offer for scope of supply and other details.





Your Knowledge Partner...

Papers presented by Mamata Extrusion @ Leading Global Conferences

Subject	Conferences	Place
"Size Matters..."	Speciality Packaging Film	Bangkok, Thailand
"Co-ex Blown Film for Edible Oil and Milk Product"	GSPMA Film	Baroda, India
"Sizing and Specifying a Co-ex Blown Film Line"	Package / Pack Plus South	Hyderabad, India
"Expert's Three Days Lecture Series on Blown Film Extrusion Technology & Emerging Trends"	CIPET Institute	Ahmedabad, India
"The Indian Market for Speciality Packaging Films – Applications and Opportunities"	Multilayer Packaging Films	Chicago, USA
"New Development in Substrate Structure and Co-extrusion Machinery"	ASI Plastic	El Salvador, America
"Sustainable Solutions Through Customised Blown Film Technology"	Propak Cape	Lagos, Nigeria
"Sustainability Through Customized Technology – Films Bags Pouches and Packaging"	Propak West Africa	Jo'burg, South Africa
"Sustainability Through Emerging Technologies – Films Bags Pouches and Packaging"	IPI Conference	Ahmedabad, India
"Realm of Possibilities Through Customized Blown Film Technology"	Asia Flexible Packaging Summit	Shanghai, China
"Sustainability Through Customized Technology – Films Bags Pouches and Packaging"	Speciality Packaging Film	New Delhi, India
"Indian Market for Polythene Film Industry"	Polyethylene Films	Florida, USA
"How to Customise Your Blown Film Line"	Speciality Packaging Film	Singapore

India Office & Works :

MAMATA MACHINERY
VALUE FOR TRUST



Survey No. 423/P, Sarkhej - Bavla Highway, Moraiya,
Tal.: Sanand, Dist.: Ahmedabad - 382213, Gujarat, INDIA.
Phone : +91-2717-630800 • E-mail : sales@mamata.com
www.mamata.com

USA Office :

MAMATA ENTERPRISES, INC.

2275, Cornell Ave., Montgomery,
IL-60538, USA.
Phone : +1 630 801 2320
Fax : +1 630 801 2322
E-mail : sales@mamatausa.com