

**FUTURE  
NEXT**

We are future ready to  
make it possible.



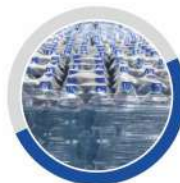
**WINDSOR**  
Partner in Progress

## Co-Extrusion Blown Film Lines



Blown Film Co-extrusion Lines  
in Technical collaboration with

**K**  
KUHNE  
GROUP  
GERMANY





Welcome to the new Windsor. A Windsor where values are driven by happy customers and growth is recorded in satisfied smiles. After we led the industry for five decades, with our latest technologies and highly reliable products, the coming years will see a new-age Windsor.

As we complete 50 years of a journey of your trust, the new Windsor accumulates from its vast experience, the best practices that led to higher levels of customer satisfaction and loyalty. Blending in all such inputs, we came out with a "WIN WIN" strategy, where a value is created for each interacting partner of Windsor.

Experience with Windsor a new age of excellence in partnered ecosystem, where we begin a new era of progress, customer satisfaction, technology and above all, winning together.

Windsor's long term experience in extrusion machinery production is evident through a range of successful series of machineries, the latest of which (the third generation models) commands high reputation across the globe.

Serving a wide scope of purpose, a Windsor trademark guarantees quality to your end customers. Be it the household and agricultural pipe segment or flexible film packaging segment, Windsor offers a value in the form of reliability and optimum quality standards.

Hence Windsor is the most reliable partner for a customer.



Extrusion Machinery Division  
Ahmedabad, Gujarat



Injection Moulding Machinery Division  
Chhatral, Gujarat

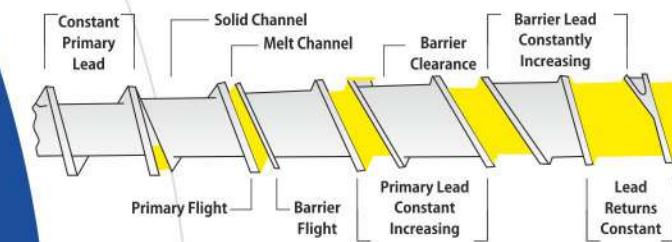


Injection Moulding Machinery Division  
Brescia, Italy



## EXTRUDERS

- Barrier screw design
- Grooved feed design barrel for high outputs - 30 D long
- Versatile geometries of screw and barrel feed sections to match variety of Polymers
- Ceramic band heaters
- AC drives from Europe/Japan
- Direct coupled motor with Gearbox
- Option of imported Gearbox



## BARRIER SCREW

- Barrier screws capable to process LDPE, LLDPE, MLLDPE, HMHDPE, Polyamide, EVA, EVOH, PP, Primacore & Surllyn
- Screws Nitrided up to 65 to 67 HRC
- High output & Uniform melt quality at low temperature
- High capacity thrust bearing for longer life
- Tungsten Carbide Coated Screw (optional)



## AIR COOLING RINGS

- Dual lip design with high volume for excellent bubble control
- Option of imported air cooling rings from Europe for further enhancing performance



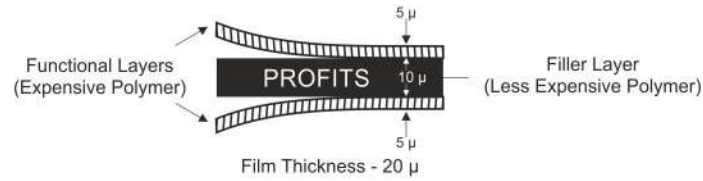
## CALIBRATION BASKETS OPTIONS

- 4 segment cage with Teflon Bush for Non IBC - Machines
- 9 or 12 segment scissor type design in IBC - Machines



### FILM BLOWING HEADS

- Universal spiral mandrel die designs
- Stream lined flow path to ensure faster change over
- CNC machining to ensure highest precision
- All flow surfaces mirror polished to eliminate degradation of plastic melt
- A unique designed flow path to achieve higher layer ratio effectively



### TAKE OFF ASSEMBLY

#### Collapsing Frame

- Rigid structure & longer support guides the bubble at higher output & line speed
- Operator friendly frame setting
- PBT bushes / aluminum rollers in slats frame
- Option of carbon fiber rollers in slats frame
- Option of motorised adjustment of slats frame



#### Oscillating Haul Off

- For all standard lines, reversing haul off forms an integral method for gauge randomisation
- Horizontally designed take off available up to 3000 mm roller width
- Variable frequency A.C. drive for nip
- Synchronised drives
- Water cooled nips
- Chilled turn bar arrangement (optional)
- Slewing ring design assembly with heavy duty bearing



### FILM WINDERS

#### Semi-Automatic Winders

- Two station semi-automatic surface winders
- Online reel changeover without any wastage
- Bow roller provided as expander roller
- Load cell for tension control arrangement

#### Fully Automatic Winders

- Maximum roll dia. / Max. roll weight 1000 mm/1000 Kg
- Line speed - Max. 150 m/min (Mechanical)
- Automatic reel change over and automatic web cross-cutting mechanism
- Pneumatic shaft (4 Nos)
- Expander roller - Polyband / Banana
- European gear drives
- Load cell for tension control arrangement
- Vector flux drive in closed loop
- Hydraulic unloading of wound roll as standard



# DUKE Series

3 Layer Blown Film Co-Ex Line (Non IBC)

Blown Film Co-extrusion Lines  
in Technical collaboration with



## SPECIFICATIONS

DESCRIPTION	UNIT	3 LAYER NON IBC				
		DUKE 1000	DUKE 1250	DUKE 1500	DUKE 1700	DUKE 2200
<b>PROCESSING DATA</b>						
Film Layflat Width Range	mm	600 - 1000	650 - 1250	900 - 1500	1000 - 1700	1400 - 2200
Film Thickness Range LL/LD/HD	micron	20 - 150				
<b>MAXIMUM FILM OUTPUT</b>						
LD-LD-LD	Kg/hr	100 - 120	160 - 180	200 - 220	260 - 280	270 - 300
LLD-LLD-LLD	Kg/hr	90 - 110	140 - 150	180 - 200	200 - 220	240 - 280
HD-LD-HD/LD	Kg/hr	100 - 110	140 - 160	190 - 210	210 - 230	230 - 250
No. of Extruders		3	3	3	3	3
L/D Ratio		24:1	30:1	30:1	30:1	30:1
Extruder	mm	40/50/40	50/60/50	55/60/55	55/60/55	60/60/60
Extruder-Motor Rating	kW	11/22/11	22/45/22	30/45/30	30/45/30	45/45/45
Thickness Randomisation		Oscillating Haul off				
<b>DIE</b>						
Die Lip Size	mm	250	300	350	375	450
<b>TAKE OFF</b>						
Roller Width	mm	1100	1350	1600	1800	2300
Main Nip Motor	kW	1.5	1.5	1.5	1.5	2.2
<b>TWO STATION SURFACE WINDER – XTRA FLEX</b>						
Type		Semi-Auto	Semi-Auto	Semi-Auto	Semi-Auto	Semi-Auto
Roller Width	mm	1100	1350	1600	1800	2300
Additional Nip Motor	kW	0.75	1.5	1.5	1.5	1.5
Winder Drive Motor	kW	0.75	1.5	1.5	1.5	1.5
Max. Wound Diameter	mm	800	800	800	800	800
Line Speed	mtrs/min	6 - 60	8 - 80	8 - 80	8 - 80	8 - 80
<b>OPERATING REQUIREMENT</b>						
Total Connected Load	kW	95	146	172	175	194
Total Space Requirement (L x W x H)	m	11x5.5x7.5**	15x9x13	16x10x13	16x10x13	17x10x13

\*Depending on winding shaft bending factor. \*\*Space requirement for Oscillating Table model



# REX Series

3 Layer Blown Film Co-Ex Line (Non IBC)

Blown Film Co-extrusion Lines  
in Technical collaboration with



## Features

- Maximum Film Width = 2700 mm Double Lay flat
- Maximum Film Output = 650 kgs / hr.
- Film Thickness Range : 20 micron to 150 micron
- European make Gear box in each Extruder [ Optional ]
- WML - Make high volume air cooling ring as std. up to 450mm lip size
- Imported air cooling ring for 500mm and above lip size as std.
- Imported IBC control in the standard scope
- Fully Automatic Two station surface winder in the standard scope
- European make Gravimetric Batch blender along with Through Put control [ Optional ]
- European make Auto Film Thickness Measurement control system with Auto Cooling Ring [ Optional ]
- European make Auto width measurement system [ Optional ]



## SPECIFICATIONS

DESCRIPTION	UNIT	3 LAYER IBC PLANT					
		REX 1250	REX 1500	REX 1700	REX 2200	REX 2500	REX 2700
<b>PROCESSING DATA</b>							
Film Layflat Width Range	mm	800 - 1250	900 - 1500	1000 - 1700	1400 - 2200	1600 - 2500	1700 - 2700
Film Thickness Range LL/LD/HD	micron	20 - 150					
<b>MAXIMUM FILM OUTPUT</b>							
LD-LD-LD	Kg/hr	300 - 330	320 - 350	350 - 380	550 - 600	550 - 600	600 - 650
LLD-LLD-LLD	Kg/hr	250 - 280	300 - 320	320 - 350	480 - 520	500 - 550	550 - 580
HD-LD-HD/LD	Kg/hr	270 - 300	300 - 330	320 - 350	500 - 550	500 - 550	600 - 625
No. of Extruders		3	3	3	3	3	3
L/D Ratio		30:1	30:1	30:1	30:1	30:1	30:1
Extruder Options 1	mm	60/60/60	60/60/60	60/75/60	75/90/75	75/90/75	90/90/90
Extruder Options 2	mm	60/75/60	60/75/60	-	60/105/60	60/105/60	75/105/75
Extruder-Motor Rating for Option 1	kW	56/56/56	56/56/56	56/75/56	75/132/75	75/132/75	112/112/112
Extruder-Motor Rating for Option 2	kW	56/75/56	56/75/56	-	56/160/56	56/160/56	75/160/75
Thickness Randomisation		Reversing Haul Off					
<b>DIE</b>							
Die Lip Size	mm	300	350	400	600	600	650
<b>TAKE OFF</b>							
Roller Width	mm	1350	1600	1800	2300	2650	2850
Main Nip Motor	kW	1.5	1.5	1.5	2.2	2.2	2.2
<b>TWO STATION SURFACE WINDER*</b>							
Type		Automatic	Automatic	Automatic	Automatic*	Automatic*	Automatic*
Roller Width		1350	1600	1800	2300	2650	2850
Additional Nip Motor	kW	1.5	1.5	1.5	1.5	1.5	1.5
Winder Drive Motor	kW	1.5	1.5	1.5	1.5	1.5	1.5
Max. Wound Diameter**	mm	1000	1000	1000	1000	1000	1000
Line Speed	mtrs/min	12 - 120	12 - 120	12 - 120	12 - 120	12 - 120	12 - 120
<b>OPERATING REQUIREMENT</b>							
Total Connected Load for Option 1	kW	288	349	349	476	476	610
Total Space Requirement (L x W x H)	m	18x12x13	19x12x13	19x12x13	24x14x14	24x14x14	25x15x16

# Xtra flex types semi automatic winder can be provided as a option for models upto Rex 1700. \*FP505 Fully Automatic Winder. \*\* Depending on winding shaft bending factor



# BARON Series

Five Layer Blown Film Line for Barrier Film Applications

Blown Film Co-extrusion Lines  
in Technical collaboration with



### Features

- Thick skin layers with thin core layers
- Flexibility in processing wide range of barrier materials
- Complete automation package from Plast control or Octagon - Germany or Doteco - Italy

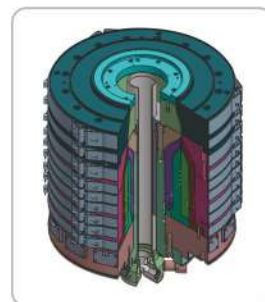
### Barrier Film Applications

- Oil packaging film
- UHT milk pouch film
- Frozen meat and fish packaging film
- Food packaging film

### 5 LAYER DIE HEAD

#### Features

- Feel proven spiral mandrel German die design
- Optimum performance with excellent thickness distribution
- Works with broad range of polymers for barrier film structure



### C-SCAN PROFILE MEASUREMENT

- Barrier film profile measurement
- Non contact measurement of overall thickness

### BARRIER FILM PLANT

DESCRIPTION	UNIT	5 LAYER IBC - PLANT BARON 1700		5 LAYER IBC - PLANT BARON 2200	
<b>PROCESSING DATA</b>					
Film Layflat Width Range	mm	PE 900 - 1700	PA/EVOH 900 - 1350	PE Upto 2200	PA/EVOH Upto 1750
Film Thickness Range	micron	30 - 150	30 - 150	30 - 150	30 - 150
<b>MAXIMUM OUTPUT</b>					
LD-LD-LD	Kg/hr	300 - 330		400 - 450	
LLD-LLD-LLD	Kg/hr	290 - 320		380 - 410	
HD-LD-HD/LD-Tie-PA or EVOH-Tie-LD*	Kg/hr	280 - 300		330 - 360	
No. of Extruders		5		5	
Screw Dia	mm	75G / 60 / 60 / 60 / 75G			
Extruder-Motor Rating	kW	75 / 30 / 30 / 30 / 75			
Thickness Randomisation		Oscillating Haul Off			
<b>DIE</b>					
No. of Film Layers		5		5	
Die Lip Size (HM) / (LL/LD)	mm	400		500	
<b>TAKE OFF</b>					
Roller Width	mm	1800		2300	
Main Nip Motor	kW	2.2		2.2	
<b>TWO STATION SURFACE WINDER</b>					
Type		Automatic		Automatic	
Roller Width	mm	1800		2300	
Additional Nip Motor	kW	1.5		1.5	
Winder Drive Motor	kW	1.5		1.5	
Max. Wound Diameter	mm	1000		1000	
Line Speed	mtrs/min	12 - 120		12 - 120	
<b>OPERATING REQUIREMENT</b>					
Total Connected Load	kW	343		395	
Total Space Requirement (L x W x H)	m	20x13x14		20x13x14	

\*Depending on winding shaft bending factor

## NON-BARRIER FILM PLANT

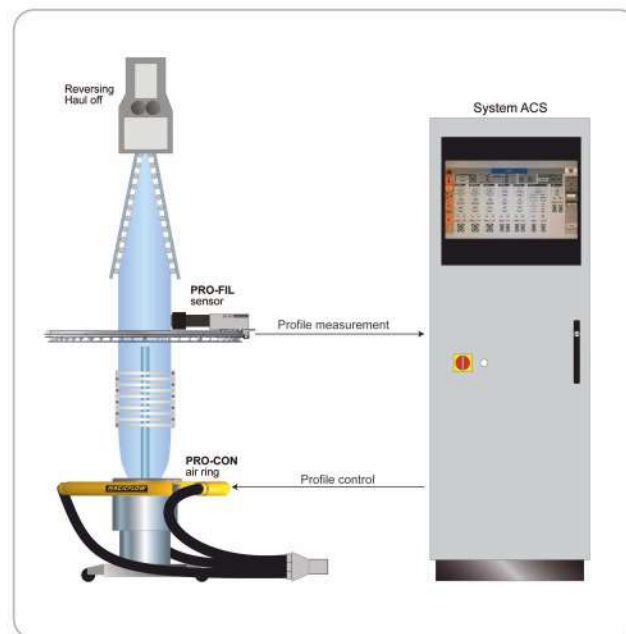
DESCRIPTION	UNIT	BARON 2200 POD INFINITY	BARON 2500 POD INFINITY	BARON 2500 DUO POD INFINITY	BARON 2700 DUO POD INFINITY
Extruders set		55 / 60 / 90 / 60 / 55	55 / 75 / 90 / 75 / 55	60 / 75 / 105 / 75 / 60	60 / 75 / 105 / 75 / 60
Melt capacity	Kg/hr	upto 670	upto 740	upto 910	upto 910
Film Outputs (LD Rich)	Kg/hr	upto 425 - 475	upto 600	upto 650 - 700	upto 650 - 750
Film Outputs (LL Rich)	Kg/hr	upto 400 - 450	upto 550	upto 600 - 650	upto 600 - 700
Layer ratio		1 : 2 : 4 : 2 : 1	1 : 2 : 4 : 2 : 1	1 : 2 : 4 : 2 : 1	1 : 2 : 4 : 2 : 1
Die Lip size	mm	450	550	600	600
Film Lay Flat Width Range		1400 / 1800 / 2200	1800 / 2200 / 2500	1800 / 2200 / 2500	2200 / 2500 / 2700
Film Thickness Range	micron	20-150			
BUR levels		2.00 / 2.54 / 3.11	2.08 / 2.54 / 2.89	1.9 / 2.33 / 2.65	2.33 / 2.65 / 2.86
Gravimetric Batch Blenders		1+3 components (PLASTCONTROL GmbH, Germany make)			
Automatic thickness Profiling		With FIXED position air cooling ring (PLASTCONTROL GmbH, Germany make)		With ELEVATION type air cooling ring (PLASTCONTROL GmbH, Germany make)	
Total Space Requirement (L x W x H)	m	21x17x16	25x15x17	25x15x17	27x15x18

### Features

- Thin skin and sub-skin layer with thick core
- Introduction of specific functionalities in discrete layers
- Increased flexibility through additional layer thickness combinations
- Exploration of synergistic material / layering effect
- Higher output by using layers of high melt strength materials
- Enhancement of mechanical property of the film
- Better puncher resistance property
- Possibility of down gauging (can get more yield)
- Reduced usage of MLLDPE



Elevated Cooling Ring



Profile Control & Measurement Systems

Blown Film Co-extrusion Lines  
in Technical collaboration with

**K**  
KUHNE  
GROUP  
GERMANY

## BARON Series

POD Line A Five Layer Polyolefin Dedicated

Line for Non Barrier Film Applications



# MAGNATE Series

7 & 9 layer Co-Extrusion Blown Film Lines

Blown Film Co-extrusion Lines  
in Technical collaboration with



7 Layer Extruder



Industrial Panel-PC  
(Touch Screen Control)

## 7 & 9 LAYER MAGNATE SERIES

### Features

- Highly versatile die design leading to optimum quality of Barrier as well as PE film.
- Possibility of running asymmetric structure (outer layer of PA/EVOH) [Optional]
- High mechanical and optical properties
- Auto gauging system [Optional]
- Gravimetric Batch blenders [Optional]
- Film width measurement & control [Optional]

### Can Offer

Latest Tech DISC Die for 7/9 Layer imported from KUHNE GmbH (Germany).

### Advantage

- Higher output on small width
- Fast changeover of polymers
- Easy conversion from 7 to 9 layer
- Capable to process wide range of polymers Barrier and Non barrier

## BARRIER FILM PLANTS

DESCRIPTION	UNIT	7 LAYER NON IBC - PLANT		7 LAYER IBC - PLANT		9 LAYER IBC - PLANT
		MAGNATE 1250/7L	MAGNATE 1700/7L	MAGNATE 2200/7L	MAGNATE 1500/9L	
<b>PROCESSING DATA</b>						
Film Layflat Width Range	mm	900 - 1250	900 - 1700	1500 - 2200	900 - 1500	
Film Thickness Range LL/LD/HD	micron	30 - 150	30 - 150	50 - 150	30 - 150	
Film Thickness Range with PA	micron	45 - 150	45 - 150	45 - 150	45 - 150	
<b>MAXIMUM OUTPUT</b>						
LD-LD-LD	Kg/hr	180 - 200	350 - 380	380 - 400	300 - 350	
LLD-LLD-LLD	Kg/hr	170 - 190	300 - 320	320 - 350	300 - 350	
HD-LD-HD/LD-Tie-PA or EVOH-Tie-LD*	Kg/hr	160 - 180	280 - 320	320 - 350	300 - 350	
No. of Extruders		7	7	7	9	
Screw Dia	mm	55/50/55/55/55/50/55	75P/60P/60P/60P/60P/60P/60G		60/55/50/50/55/50/55/60	
Extruder-Motor Rating	kW	22/22/22/22/22/22/22	45/30/30/30/30/56		30/22/22/22/22/22/30/56	
Thickness Randomisation			Oscillating Haul Off			
<b>DIE</b>						
No. of Film Layers		7	7	7	9	
Die Diameter	mm	350	400	600	280 - 400	
<b>TAKE OFF</b>						
Roller Width	mm	1350	1800	2300	1600	
Main Nip Motor	kW	1.5	1.5	2.2	1.5	
<b>TWO STATION SURFACE WINDER</b>						
Type		Automatic	Automatic	Automatic	Automatic	
Roller Width	mm	1350	1800	2300	1600	
Additional Nip Motor	kW	1.5	1.5	1.5	1.5	
Winder Drive Motor	kW	1.5	1.5	1.5	1.5	
Max. Wound Diameter*	mm	1000	1000	1000	1000	
Line Speed	mtrs/min	12 - 120	12 - 120	12 - 120	12 - 120	
<b>OPERATING REQUIREMENT</b>						
Total Connected Load	kW	310	425	425	470	
Total Space Requirement (L x W x H)	m	20x13x14	23x14x15	23x14x15	23x14x15	

\*Depending on winding shaft bending factor



Machines that **WIN** your trust



**WINDSOR MACHINES LIMITED**

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