



## Co-extrusion Blown Film Plants



**WINDSOR**  
Partner in Progress



[www.windsormachines.com](http://www.windsormachines.com)

## ABOUT WINDSOR

Windsor by virtue of its long history and extremely high technical competence has established itself as a sound global player in the field of extrusion machinery. Thanks to the technical collaborations and its continuous R&D that helped Windsor create a satisfied customer base around the globe.

Windsor's leadership in blown film line is endorsed since 1992 when we got the collaboration license from KUHNE GmbH. This technological edge was with no other supplier giving as an opportunity to establish our selves as a leader and rest to follow.

Likely any other industry maintaining the pinnacle position called for the continued innovations in the Indian context and we successfully executed giving the best value for capital invested. We also developed capability to execute total solution for overseas clients by product sourcing and subsequent training. Today, we are known as solution provider rather than a supplier be it process related, turnkey supply, automation related or mechanics.

Our present product program enables us to offer lines up to 3 meters wide and output of 800 kg/hr with full automation.

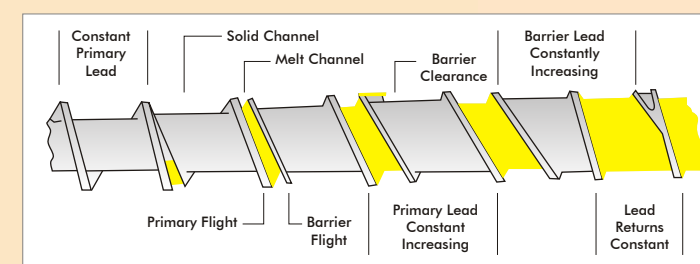
We have rechristened the blown film nomenclature and the newly developed lines are either CROWN (Monolayer) or DUKE and REX (3 layer) or BARON (5 layer) series. With the new series our focus is on running cost and we are continuously working on multiple fronts to ensure that our clients get more yield for every penny they spend.



## Extruders

- Barrier design screw
- Grooved feed design barrel for high outputs -30 D long
- Output upto 800 Kg.hr
- Geometries of screw and barrel feed sections to match variety of Polymers
- Fin type heaters for better control of heat
- AC drives from Europe/Japan
- Option of imported Gearbox from Europe

## Barrier Screw



- Barrier screws capable to process LDPE, LLDPE, HMHDPE, Poly amid, EVA, EVOH, PP, Primacore & Surlyn
- Screws Nitrided up to 65 to 67 HRC
- High output & Uniform melt quality at low temperature
- High capacity thrust bearing for longer life

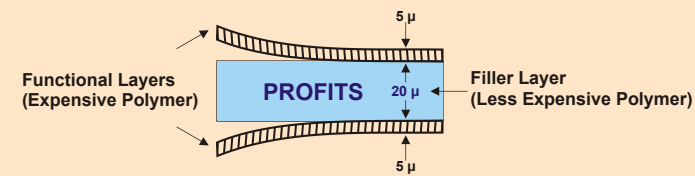


## Air Cooling Rings

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

## 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 differential layer ratio effectively



## Calibration Baskets-Options

- Standard cage for Duke lines
- 9 point contact type motorised cage for IBC standard lines
- Scissor design multipoint contact cage

## Take Off Assembly

### Collapsing Frame

- Rigid structure & longer support guides the bubbles at higher output & line speed
- Operator friendly frame setting
- PBT bushes as standard
- Option of Aluminum rollers available for specific application
- Option of motorised adjustment of slats



### Reversing Haul Off

- For all standard lines, reversing haul off forms an integral method for gauge randomisation
- Horizontally designed take off available upto 3000mm roller width
- Variable frequency A.C. drive for nip
- Synchronized drives
- Water cooled nips (optional)
- Slewing ring design



## Film Winders

### SEMI AUTOMATIC WINDERS

- Two station semiautomatic surface winders
- Online reel changeover without any wastage
- Bow roller provided as expander roller
- Option of Auto-tension control



### FULLY AUTOMATIC WINDERS

- Winding capacity - 1000 mm / 1000 Kg
- Line speed – Max. 150 m/min
- 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
- Vector flux drive in closed loop
- Hydraulic lowering of wound roll (optional)



### OPTIONAL FEATURES FOR FULL AUTOMATION

- Ultrasonic sensors for IBC controls
- Gravimetric dosing or batch blending with yield control
- Fully automatic thickness measurement and control

# Duke

3 layer blown film co-ex line  
(non IBC)



In technical collaboration with  
**K** **KUHNE**  
GmbH, Germany

DESCRIPTION	UNIT	3 Layer Non IBC			
		Duke 1250	Duke 1500	Duke 1700	Duke 2100
<b>PROCESSING DATA</b>					
Film layflat width range	mm	600 - 1250	900 - 1500	1000 - 1700	1400 - 2100
Film thickness range LL/LD/HD	micron	20 - 150			
<b>MAXIMUM OUTPUT</b>					
LD-LD-LD	Kg/hr	180 - 200	200 - 220	220 - 240	220 - 240
LLD-LLD-LLD	Kg/hr	160 - 180	180 - 200	200 - 220	200 - 220
HD-LD-HD/LD	Kg/hr	170 - 190	190 - 210	210 - 230	210 - 230
No. of Extruders		3	3	3	3
L/D Ratio		30:1	30:1	30:1	30:1
Extruder Options 1	mm	50/50/50	55/55/55	55/55/55	55/55/55
Extruder Options 2	mm	-	50/60/50	50/60/50	50/60/50
Extruder-Motor Rating for Option 1	kW	22/22/22	30/30/30	30/30/30	30/30/30
Extruder-Motor Rating for Option 2	kW	-	22/45/22	22/45/22	22/56/22
Guage Randomisation		Through Oscillating Table / Reversing Haul off			
<b>DIE</b>					
Die lip size	mm	300	350	375	425
<b>TAKE OFF</b>					
Roller width	mm	1350	1600	1800	2200
Main nip motor	kW	2.2	2.2	2.2	2.2
<b>TWO STATION SURFACE WINDER - XTRA FLEX</b>					
Type	mm	Semi - Auto	Semi - Auto	Semi - Auto	Semi - Auto
Roller width	mm	1350	1600	1800	2200
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	600	600	800	800
line speed	mtrs/min	8-80	8-80	8-80	8-80
<b>OPERATING REQUIREMENT</b>					
Total connected load for Option I	kW	146	172	175	194
Total space requirement (L x W x H)	m	16x10x13	16x10x13	16x10x13	18x10x14

\*Depending on winding shaft bending factor

# Rex

3 layer blown film co-ex line (IBC)

## IBC System

Windsor, by virtue of its long association with Kunhe has the privilege of being the first Indian Company to manufacture and supply the IBC line with German Technology way back in 1997. Today the experience has developed into an expertise and a total of more than 60 lines are successfully extruding profits for the processors. This has enabled the Industry to achieve a minimum conversion cost. Major industry converters in India have continuously patronised Windsor because of the cost competitiveness.



Manufactured under licence from  
**KUHNE**  
GmbH, Germany

DESCRIPTION	UNIT	3 Layer IBC PLANT						
		Rex 1250	Rex 1500	Rex 1700	Rex 1900	Rex 2200	Rex 2500	Rex 2700
<b>PROCESSING DATA</b>								
Film layflat width range	mm	700 - 1250	900 - 1500	1000 - 1700	1200 - 1900	1400 - 2200	1600- 2500	1700 - 2700
Film thickness range LL/LD/HD	micron	25 - 150						
<b>MAXIMUM OUTPUT</b>								
LD-LD-LD	Kg/hr	300 - 330	320 - 350	350 - 380	350 - 400	550 - 600	550 - 600	600-650
LLD-LLD-LLD	Kg/hr	250 - 280	300 - 320	300 - 330	330 - 360	480 - 520	500 - 550	550 - 580
HD-LD-HD/LD	Kg/hr	270 - 300	300 - 330	310- 340	350 - 380	500 - 550	500 - 550	600 - 625
No. of Extruders		3	3	3	3	3	3	3
L/D Ratio		30:1	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	60/75/60	75/90/75	75/90/75	90/90/90
Extruder Options 2	mm	-	55/75/55	-	60/90/60	60/120/60	60/120/60	75/120/75
Extruder-Motor Rating for Option 1	kW	56/56/56	56/56/56	56/75/56	56/75/56	75/132/75	75/132/75	112/112/112
Extruder-Motor Rating for Option 2	kW	-	30/75/30	-	45/112/45	56/180/56	56/180/56	75/180/75
Guage Randomisation		Reversing Haul Off						
<b>DIE</b>								
Die lip size	mm	300	350	400	425	600	600	650
<b>TAKE OFF</b>								
Roller width	mm	1350	1600	1800	2050	2300	2650	2850
Main nip motor	kW	2.2	2.2	2.2	2.2	3.75	3.75	3.75
<b>TWO STATION SURFACE WINDER #</b>								
Type	mm	Automatic	Automatic	Automatic	Automatic	Automatic	Automatic	Automatic
Roller width	mm	1350	1600	1800	2050	2300	2650	2850
Additional nip motor	kW	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Winder drive motor	kW	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Max. wound diameter**	mm	1000	1000	1000	1000	1000	1000	1000
line speed	mtrs/min	12-120	12-120	12-120	12-120	15-150	15-150	15-150
<b>OPERATING REQUIREMENT</b>								
Total connected load for option I	kW	288	349	349	349	476	476	610
Total space requirement (L x W x H)	m	18x12x13	19x12x13	19x12x13	20x13x14	24x14x14	24x14x14	25x15x16

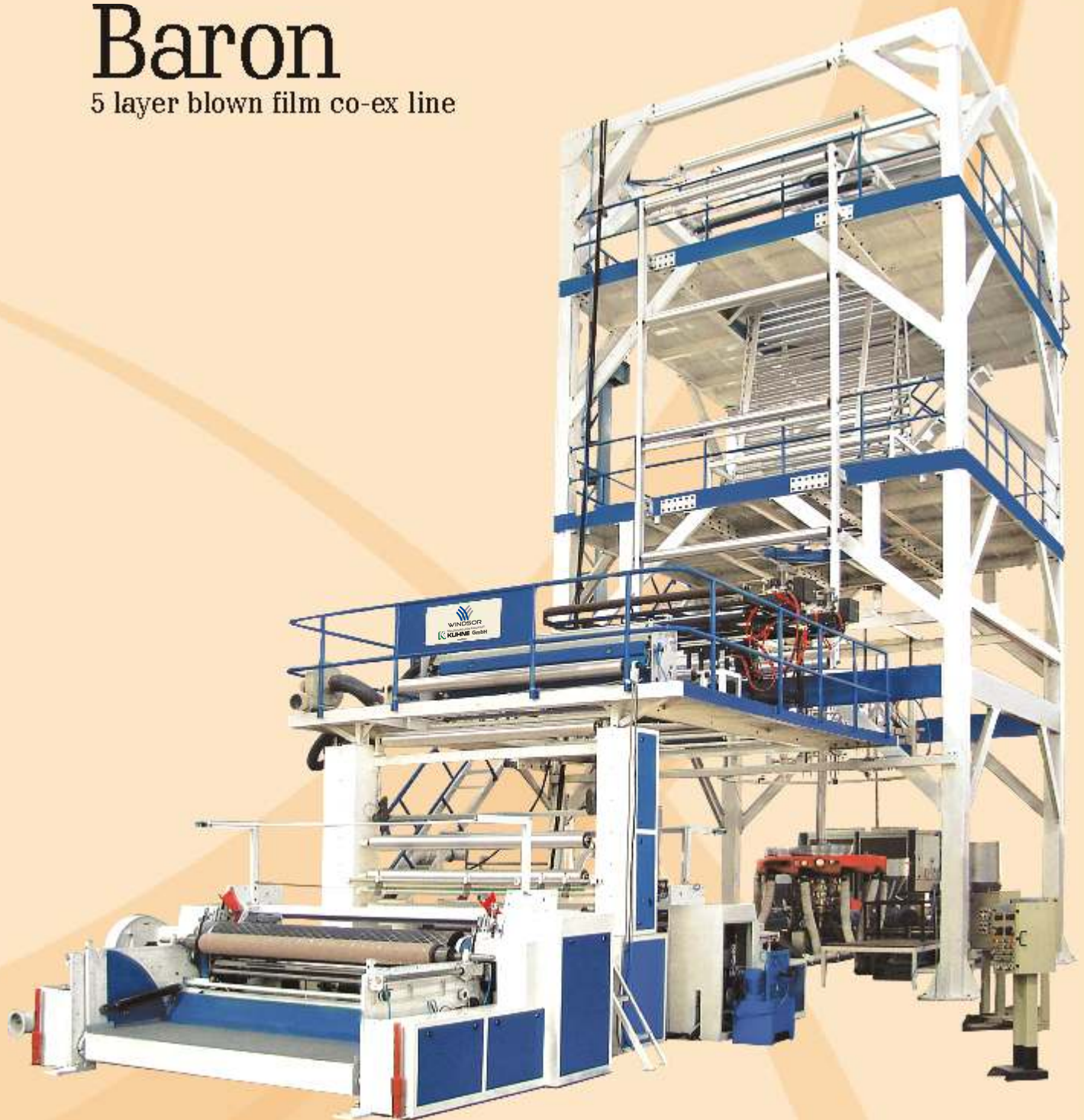
# Xtra flex types semi automatic winder can be provided as a option for models upto Rex 1700

\* FP505 Fully Automatic Winder

\*\* Depending on winding shaft bending factor

# Baron

5 layer blown film co-ex line



Manufactured under licence from



DESCRIPTION	UNIT	5 Layes Non IBC - PLANT	5 Layer IBC - PLANT
		Baron 1500	Baron 1500 (IBC)
<b>PROCESSING DATA</b>			
Film layflat width range	mm	900 - 1500	1050- 1500
Film thickness range LL/LD/HD	micron	25- 150	25- 150
Film thickness range with PA	micron	50- 150	50- 150
<b>MAXIMUM OUTPUT</b>			
LD-LD-LD	Kg/hr	180- 200	300- 330
LLD-LLD-LLD	Kg/hr	160- 180	290- 320
HD-LD-HD/LD-Tie-PA or EVOH-Tie-LD*	Kg/hr	170 - 190	260- 280
No. of Extruders		5	5
Screw Dia	mm	55G/40/50/40/55G	60G/50/60/50/60G
Extruder-Motor Rating	kW	30/11/22/11/30	56/15/30/15/56
Guage Randomisation		Reversing Haul Off	
<b>DIE</b>			
No. of film layers		5	5
Die lip size (HM) / (LL/LD)	mm	350	400
<b>TAKE OFF</b>			
Roller width	mm	1600	1600
Main nip motor	kW	2.2	2.2
<b>TWO STATION SURFACE WINDER</b>			
Type	mm	Semi Automatic	Automatic
Roller width	mm	1600	1600
Additional nip motor	kW	2.6	2.6
Winder drive motor	kW	2.6	2.6
Max. wound diameter *	mm	800	1000
line speed	mtrs/min	8-80	12-120
<b>OPERATING REQUIREMENT</b>			
Total connected load for option I	kW	265	343
Total space requirement (L x W x H)	m	19x13x14	19x13x14

\*Depending on winding shaft bending factor



## WINDSOR MACHINES LIMITED

(Formerly DGP Windsor India Ltd.)

5403, Phase IV, GIDC, Vatva, Ahmedabad - 382 445. INDIA

Tel. : (079) 25841591/2/3, 25840095, 25841075 | Fax : (079) 25842059, 25842145

E-mail : [mkt.vatva@wml.co.in](mailto:mkt.vatva@wml.co.in), Website : [www.windsormachines.com](http://www.windsormachines.com)

### REGIONAL OFFICES

**INTERNATIONAL SALES** : +91 79 40200300, 98980 42145 Fax : +91 79 25842059

**AHMEDABAD** : (079) 25841017, 40200295 Fax : (079) 25842059 **BANGALORE** : (080) 22236600, 22275587 Fax : (080) 22244697

**CHENNAI** : (044) 24346571, 24349541 Fax : (044) 24341097 **DELHI** : (011) 26452634 / 35, 32931985 Fax : (011) 26452633

**HYDERABAD** : (040) 23203146, 23204162 Fax : (040) 23204162 **KOCHI** : (0484) 2382271, 2364113 Fax : (0484) 2382271

**KOLKATA** : (033) 23557460, 23557461 Fax : (033) 23555470 **MUMBAI** : (022) 25837519, 25836592 Fax : (022) 25836285

**PUNE** : (020) 27478620, 27461552 Fax : (020) 27478620 **VAPI** : (0260) 2461634, 2463514 Fax : (0260) 2463514

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