

Scientific

Co-Extrusion Cast Flat Film and Sheet Chill Roll Lines Including MDO Stretching Line

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Including MDO Stretching Line



*From 2 to 7 layers
Available with a large range of chill rolls with
die sizes from 100 to 1100 mm
and extruder sizes from 12.5 to 45 mm*

Labtech Engineering

TECHLABSYSTEMS

CHILL ROLLS ATTACHMENTS IN MANY DIFFERENT SIZES



Our chill roll attachments are available in many sizes with roll widths ranging from 180 to 1200 mm and with either pneumatic or high-powered hydraulic lay-on of the top roll, and with many options.

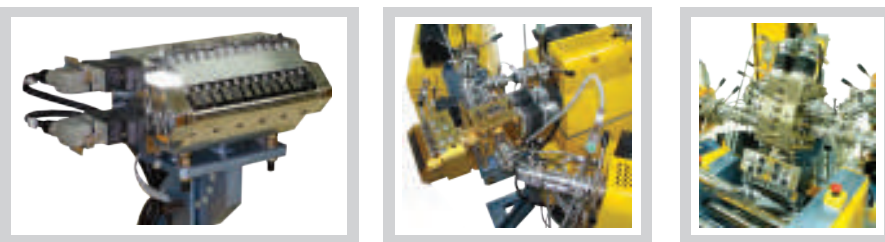
Our hydraulic version is also used as standard for our calender, for producing high precision sheet and film. The rolling stack can be made with either two or three rolls. All rolling stacks can be adjusted from vertical to horizontal positions and on our largest 600 size, the rolling stack is equipped with motorized tilting.

TO BE USED WITH A LARGE VARIETY OF OUR EXTRUDERS



The chill roll attachments can be used with a large range of our single screw extruders, ranging from our smallest 12.5 mm size to the largest 45 mm version, all with 30 L/D and with a large variety of screw designs for running a wide range of co-extrusion polymers such as EVOH, tie layers, PA, PE, EVA, PP, etc. The extruders are available with various drive systems where the most commonly used versions are the Vector Servo drives with high torque at low RPM. The screws and barrels are available with normal nitriding as well as bimetallic and other corrosion resistant steels.

DIES OF UP TO 1100 MM WIDTH AND FEED BLOCKS FOR UP TO 7 LAYERS



Dies are available with widths ranging from 100 to 1100 mm and are all equipped with adjustable lips, using the push-pull system. The die gap adjustment range is from 0 to 2.2 mm. Dies can also be equipped with lip inserts

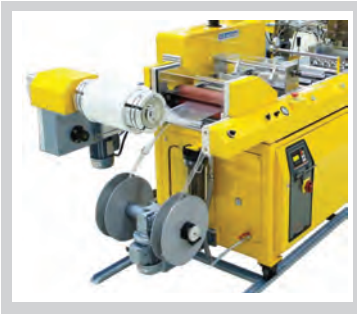
for larger openings. The coextrusion feed block divides the resin flow from each extruder into perfect “sandwich” layers which are fed in parallel into the flat die where the layers keep their distinct position on top of each other over the entire width of the die. Even the thinnest film can be made with the same precision of each layer.

PRACTICAL CENTRAL CONTROL CABINET

All our co-ex chill roll lines are equipped with a practical central control cabinet containing all of the die and feed block parameters. All extruder functions are set and displayed on digital instruments, or on an optional touch screen.



MANY OPTIONS ARE AVAILABLE FOR ALL OF OUR CO-EX CHILL ROLL LINES



Edge trimmer

This option is essential when producing films since it will ensure a nice and even windup of the film without wrinkles. The edge trimmer unit has two sharp, tiltable cutting blades and for thicker substrates they can be replaced with rotary cutting blades.



Expandable windup shaft

Another practical option is the pneumatically operated expandable windup shaft. This enables winding of the film directly onto the shaft without the use of a bobbin

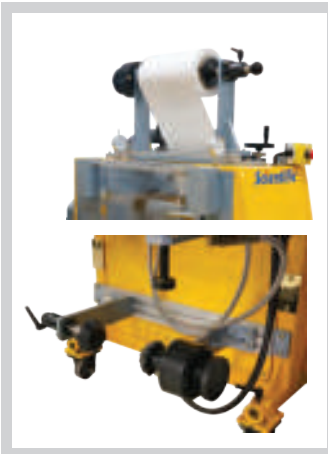


Automatic film tension control of windup

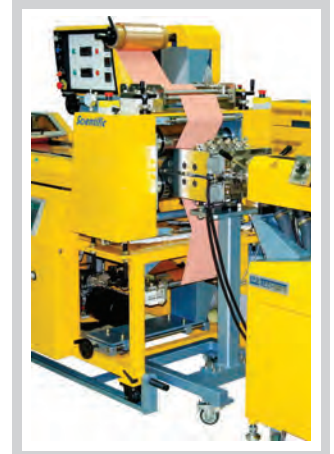
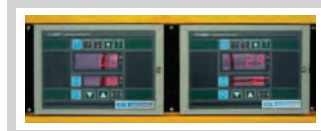
With this system the windup tension of the film is kept constant throughout the entire windup process and it is completely independent of the diameter on the windup roll.



Substrate unwinding attachments for laminating, with manual or fully-automatic tension control



All our co-ex chill roll lines can be equipped with unwinding units for laminating on either the top side or the bottom side, or on both sides of the extruding core resin. It is recommended to use chill rolls with high pressure (hydraulic) lay-on of the top roll to ensure good adhesion of the laminated layers. The unwinding units are available with either a manually adjusted slip clutch system or a fully automatic tension control system where the tensioning is measured by sensors and controlled by an electric powder clutch, thus ensuring a very constant web tension independent of the roll diameter of the web/substrate.



Computerized weighing hopper extruder feed system for very accurate control of the layer distributions



With our computerized weighing hopper feeder system it is possible to fully control the distribution of polymers in each layer of the film, both in respect to weight and thickness. The weighing hoppers will accurately control the amount of resin being fed to each layer using a closed loop system with the extruder speed control. And with the very easy-to-use central touch screen, the proportions fed from each extruder can be set individually or synchronously.

Screen Changers

Available both as manual and automatic versions and with automatic pressure alarm



MDO FILM STRETCHING UNITS



These stretching units are capable of producing film stretch ratios ranging from 3:1 to 10:1. Stretching of film is unidirectional - in the 'machine direction'. The MDO unit is free-standing and can be used for stretching film supplied to it either 'in-line' from a working chill roll unit and extruders or "off-line" from a previously made roll of film.

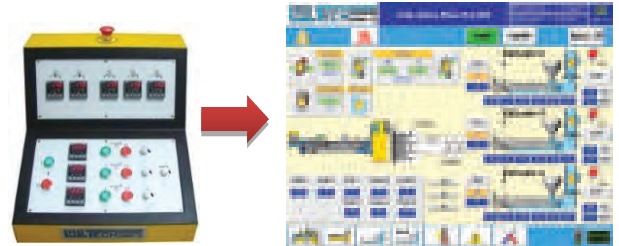


MDO Film Stretching units

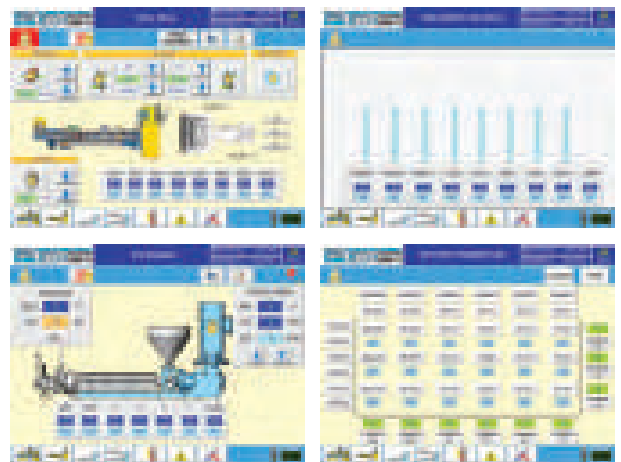
The co-ex lines can be equipped with three types of control systems which are all independent from the computerized weighing hopper system, as follows:

- As standard, the lines are equipped with manual controls with digital instruments for setting and displaying all parameters of the line.
- All of the machines have data ports and are linked to a central system where all data can be downloaded to an external PC. Graphic illustrations display all of the machines in the line with their current data such as temperatures, pressures, screw RPM, etc., and these data can be saved and recorded on the external PC.
- A fully computerized control system with large touch screen and high capacity PLC. Here, all machine controls are embedded in the PLC and are entered with a keyboard on the large touch screen. All data from the line can be downloaded as well as uploaded using Scada software to and from a PC. The touch screen has a multitude of graphic screens where all machine parameters can be set and displayed in real time. There are also many functions that display the current status of all machines as well as giving alarms. This fully-computerized system replaces the conventional digital controls on all machines.

DATA ACQUISITION SYSTEM



Fully computerized with large touch screen controls and manipulations of all data



Technical Data for combined Calendar and Chill roll attachments

		LCCR-500	LCCR-600	LCCR-700	LCCR-1000	LCCR-1200
Roll Widths	mm	500	600	700	1000	1200
Max. film width	mm	450	550	650	950	1100
Max. Die width	mm	500	600	700	950	1200
Roll diameter, all 3 rolls	mm	175	175	200	250	250
Max. line pressure	N/cm	450	450	450	450	450
Max. Nip-Gap pressure	kW	22.5	27	31.5	54	54
Hydraulic power for upper and lower roll	kW	0.75	0.75	0.75	0.75	0.75
AC servo motors drive power	kW	3 x 1	3 x 1	3 x 15	3 x 2	3 x 2
Hydraulic quick opening	mm	50	50	50	50	50
Gap fine adjustment	mm	0.1 - 6	0.1 - 6	0.1 - 6	0.1 - 6	0.1 - 6
Take - off speed	m/min	0.5 - 6	0.5 - 6	0.5 - 15	0.5 - 30	0.5 - 30
Max. winding diameter of film roll	mm	500	500	500	500	500
Pump power on water heating & cooling unit	kW	0.5	0.5	0.5	0.5	0.5
Heating power on water heating & cooling	kW	9	9	9	9	9