

EXTRUSION CONTROL

Customers can use existing equipment from Maguire **while easily expanding control elements on both existing and new lines.**



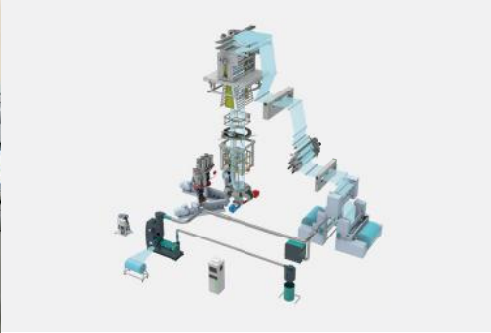


MAGUIRE® + SYNCRO
— EXTRUSION UPGRADES. CONTROL. SAVINGS. —

For Every Extrusion Process

Maguire+Syncro offer complete product line ups with all the corresponding product families.

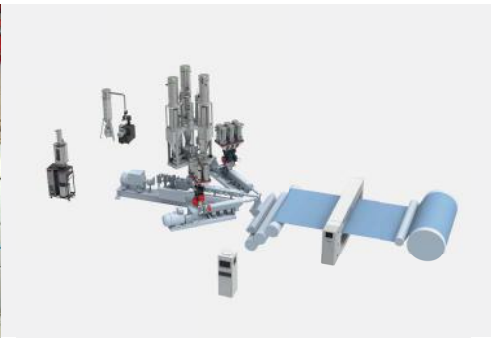
Blown Film & Cast Extrusion



Complete Product Line Up:

- + Gravimetric blending & integrated loss in weight control
- + Gravimetric feeding & loss in weight control
- + IBC & layflat control
- + Automatic air ring and profile control
- + Flat sheet & 360 gauging
- + Calibration basket & haul off upgrade
- + In line and off line recycling

Sheet Extrusion



Complete Product Line Up:

- + Gravimetric blending & integrated loss in weight control
- + Gravimetric feeding & loss in weight control
- + Flat sheet & 360 gauging

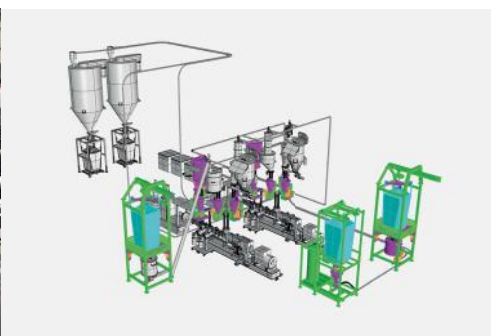
Pipe & Profile, Wire & Cable Extrusion



Complete Product Line Up:

- + Gravimetric blending & integrated loss in weight control
- + Diameter monitoring & control
- + Capacitance testing
- + Surface defect monitoring
- + Spark testers
- + Digital encoders

Compounding



Complete Product Line Up:

- + Gravimetric blending & integrated loss in weight control
- + Complete powder solutions
- + Powder feeding
- + Powder conveying
- + Powder storage

Gravimetric Blending – WSB Blender

9 blender series with over 120 models suited to every process and application. Maguire offers more models than any other producer, with off the shelf solutions and easily interfaces with all Maguire+Syncro's extrusion control modules. Options available to add on a range of feeders for pellets and powders as well as integrate liquid color.



1

High Precision Accuracy

- + Precision dosing accuracy
- + $\pm 0.1\%$ on a 1% setting
- + All materials controlled by same precision
- + Precision dynamically adjusts as densities / flow rates change

2

Intuitive Control Software

- + System monitors accuracy of total recipe
- + Adjust dosing automatically
- + Automatic error correction control

3

Regrind Control

- + Software and hardware controls regrind effectively
- + System manages flow rates and regrind availability
- + Options for maximizing regrind consumption & minimizing color if color already present in regrind

4

Color & Additive Control

- + Precision dosing devices for accurate, repeatable control
- + Integrated software to optimize dosing accuracy in relation to whole blend
- + Savings of 30% or more compared to manual / volumetric dosing

WSB 440
MODEL



5

Vibration Management

- + System is proven to manage accuracy in vibration environments
- + Unique controls and features to enhance even extreme environments
- + Dosing and mixing is robust even in high vibration environments

6

Integrated Conveying Control

- + Touchscreen controller allows easy control of conveying to and from blender
- + Simple user-friendly graphical control
- + Manage conveying dosing and blend all in one control

7

Standard Solutions Of Every Process

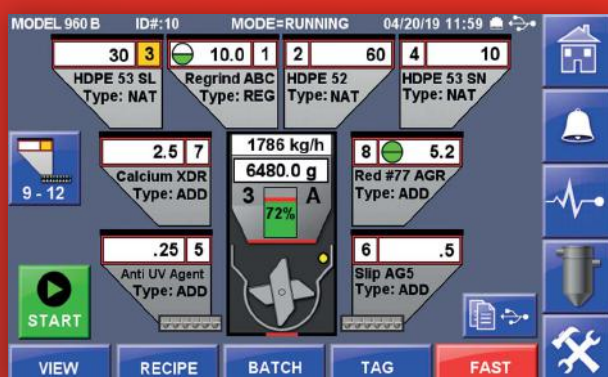
- + Throat mounting for optimum mixes in molding applications
- + Range of online and offline solutions for all extrusion applications
- + Central blending applications

8

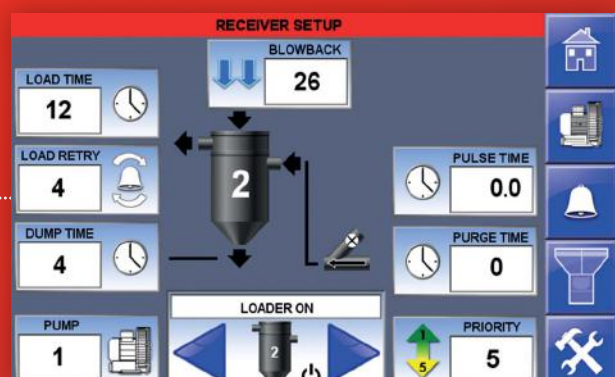
Complete Materials Data

- + Blender measures every gram of every material
- + Complete usage data for QC / process control / costing / ISO
- + Full user and alarm history

4088 Controller - Integrated Conveying Software



FlexBus Lite is integrated with our touchscreen controller for loading multiple materials into a blender.



Gravimetric Blending – WXB Blender

The WXB series of blenders offer all the functionality and capabilities of the WSB, plus add unique features and benefits for all extrusion applications.



Please Visit www.maguire.com to download our product data sheets.

+9

Integrated Blending & Extrusion Control

- + Precise dosing of all raw materials into a batch
- + Mix chamber integrated as a loss in weight hopper
- + Loss in weight updates every second process consumption

+10

Extrusion Control – Saving Up To 10% Of Materials Cost

- + Switching from manual regulation to automatic extrusion control allows significant savings
- + Savings by reduced start-up material waste & changeover scrap
- + Immediate control by responding to actual material consumption versus target required
- + Rapid return on investment

+11

Faster Material & Job Changes

- + WXB blender allows the integrated blender and loss in weight control to mount direct to process
- + Less materials mixed and in process
- + Quicker direct access and quick material changes

WXB 460
MODEL



+12

Solutions For Many Extrusion Processes

- + WXB gravimetric blending can bring major benefits to blown film and cast film processes
- + Sheet extrusion
- + Pipe, profile & tube extrusion
- + Cable & wire extrusion

+13

Maguire+Syncro Control Flexibility

- + Detailed control of materials settings, layer ratio control, & extrusion control
- + Control allows effective control for mono and co-ex processes, managed from 1 HMI
- + Modular upgrades available for air rings, IBC, gauging and wide range of control options for optimising different extrusion processes

+14

Integrated Loss In Weight

- + The WXB mix chamber also is a loss in weight hopper
- + The cantilever design offers consistent lb/hr or kg/hr data
- + The design operates effectively as process ramps up or down, as well as during the mixing process

HMI



Loss In Weight Control & Gravimetric Feeding

The Maguire LineMaster Loss in Weight control allows for faster start-up time & reduced scrap, while ensuring the correct amount of material flows into the extrusion line.



1

Suited To All Continuous Extrusion Processes

For both mono and co-extrusion processes

2

Extrusion Control – Saving Up To 10% Of Materials Cost

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- + Savings by reduced start-up material waste & changeover scrap
- + Immediate control by responding to actual material consumption versus target required
- + Rapid return on investment

3

High Precision Accuracy

The LIW hopper is suspended on a pair of highly accurate load cells, sized according to throughput



4

Automatic Throughput

Throughput of the line is fully automatic and requires no user intervention

5

Maguire+Syncro Control Flexibility

M+S extrusion control solution allows to manage material settings, consumption, layer ratio control and recipe storage

6

Range Of Materials

The LIW - 40 W hopper caters to every application of free-flowing material, pellets, granules or powder

7

Faster Start-Up Time

Switch from manual start-up to automatic and set required output. No further operator involvement

MGF ST Series

The Maguire MGF-ST configurations can be used for either injection or extrusion applications.

Self-Priming Control

Feeder automatically re-calibrates to new color, so no additional setup required.

HMI

General		Layers	Ext. Start Up
Gross Output	kg/h	250.0	0.0
Layflat Tube	mm	1200	Tube
Trimmed Layflat	mm	1000	Use Trim
Lot Target	kg	0.0	Reset Totalizer
Thickness	µm	65.0	0.0
Grammage	g/m	0.0	0.0
Line Speed	m/min	0.0	MAN - +

	Layers				
	A	B	C	D	E
Extruder Status	MAN	MAN	MAN	MAN	MAN
Layer SP	17.0	15.0	36.0	15.0	18.0
Layer PV	0.0	0.0	0.0	0.0	0.0
Output SP	44.1	37.8	86.1	37.8	45.3
Actual Output	0.0	0.0	0.0	0.0	0.0
Extruder speed	0.0	0.0	0.0	0.0	0.0
Extruder Ratio	1.000	1.000	1.000	1.000	1.000

MLS Conveying System

Flexible and compact conveying solution, ideal for conveying small to medium sized loads.

1

Full View Of The Material Loading

Direct view of material loading makes it easy for the operators to monitor operation and adjust set conveying times

2

Reduction Of Clogging

Clogging is reduced with a patented deceleration chamber that facilitates separation of material from the air stream and a fast-action slide gate that prevents pellet entrapment during material discharge

3

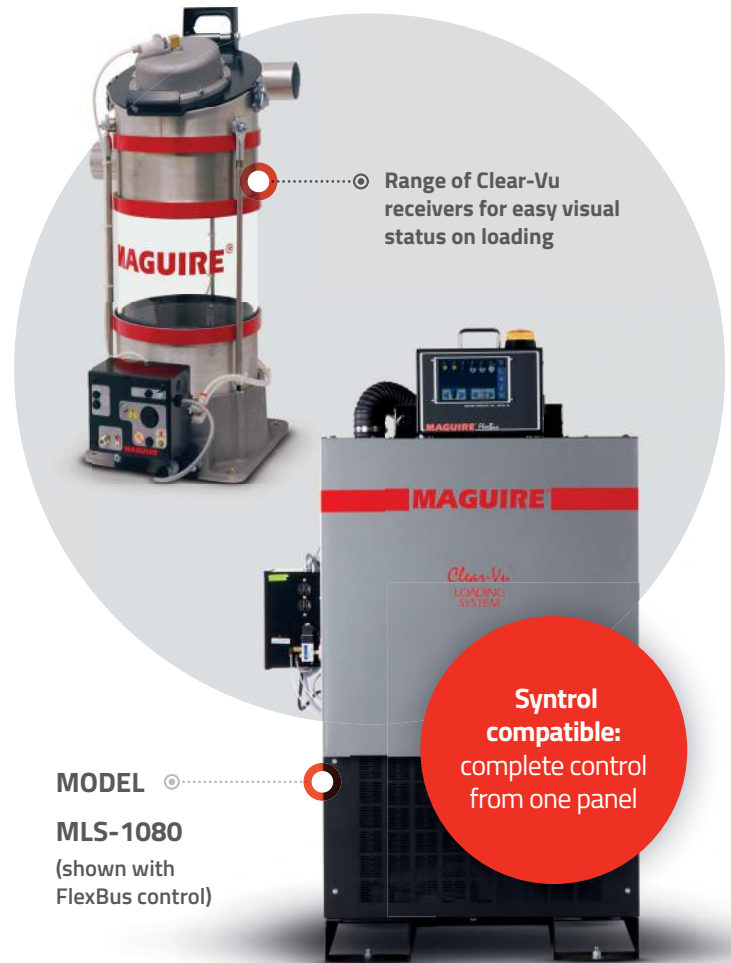
Easy Access For Cleanout

The top cover of the receiver includes the vacuum valve, material inlet and cleanout port

4

48 Receivers Per Vacuum Group

The basic MLS controller controls up to 8 receivers as standard. The FlexBus control system is capable of controlling up to 5 vacuum groups and per vacuum group up to 48 receivers, allowing the system to grow with you



FlexBus Central Conveying System

Operates up to 5x vacuum pumps, 48x receivers each, 240x receivers total using one single central FlexBus control.



Easy Installation

- + Single wire connects the control to all receivers and pumps
- + Adjusting to complicated material pipework layouts (with different material bulk density and throughput)
- + System offers bespoke conveying solutions to meet individual requirements

Total Conveying Control

- + Touchscreen, adjustable load, unload, priority, proportioning, purge, blowback and alarm settings, line cleaning
- + Retrofit to existing pumps and existing receivers

System Compatibility

- + Integrates with existing range of Maguire conveying equipment
- + Can be integrate with many other manufacturers equipment

Syntrol Basic Extrusion Control

Modular and easy to apply. The Maguire WSB & WXB Blender, LineMaster Loss in Weight & MGF can be easily combined with the Syntrol Basic Extrusion Control System. It allows to capture and analyse all production parameters on a real time basis to maximize extrusion efficiency.

Raw Materials Savings - Up To 5%

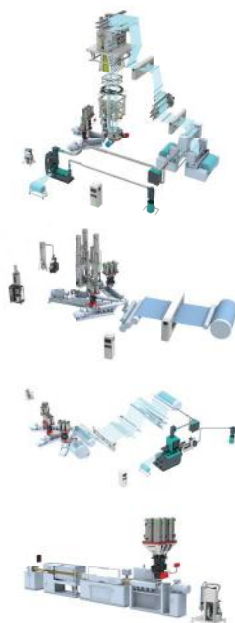
Extrusion control automates the control of the end product calculated average thickness. Automatic regulation of extrusion line(s) kg/hr, lb/hr and haul off to target gr/m, lb/ft, micron setpoints.

More Efficient Start-Ups & Change-Overs

Constant updates of kg/hr, lb/hr usage every second to each extruder, plus real time monitoring of line speed allow for precise and automatic regulation of line target output. Dynamically versus manual check and adjustments significantly simplify the operator control.

Return On Investment - 3 To 6 Months

Reduced product scrap & materials usage and reduced start-up time allow for clear, direct savings in materials and production time.



Scrap Materials Reduction

Improved control on raw material costs by immediate regulation and better materials utilization.

Increased Productivity

Quicker & automated start-ups, plus continuous line monitoring keep the product setpoints on target - 24 hours a day. No drift or manual interventions. Great improvement of line efficiency.

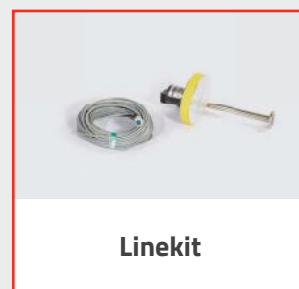
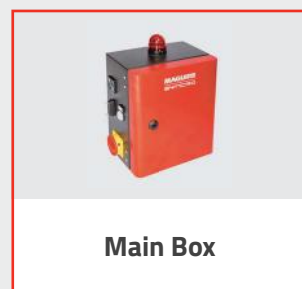
Syntrol Basic Software Interface

- + Touchscreen with user-friendly operator interface
- + Easy visualization & total control of all process parameters
- + Combined LIW mix chamber
- + Recipe storage
- + Material manager & layer control

Syntrol Basic Touchscreen Interface



Maguire+Syncro Hardware



Processes



Automatic Air Ring With Auto Profile Control

Available in wide range of sizes, the Typhoon and Flyer air rings are designed for efficient and controlled air flow to achieve your required film thickness.

Tolerance Deduction

- + Profile tolerance reduction in error up to 50% at 2σ
- + Patented TECH 2.0 technology - Tolerance reduction in error up to 75%

Elevator Air Ring

Elevated air ring for increased cooling capacity & increased output

Standard Carbon Fibre Chamber

- + Moisture free processing environment
- + Single air inlet - easy maintenance and clean operation

Automatic Profile Control

Down gauge average thickness to $\pm 4\%$

Increased Output

Increased output up to 60% - application dependent

Saving On Raw Materials Of Up To 5 %

Raw material savings from fast start-up and consistent production

Application

Retrofittable to either fixed or rotating / oscillating die

Wide Range Of Sizes

From 50 mm - 2300 mm die diameter

Increased Cooling Capacity & Excellent Bubble Stability

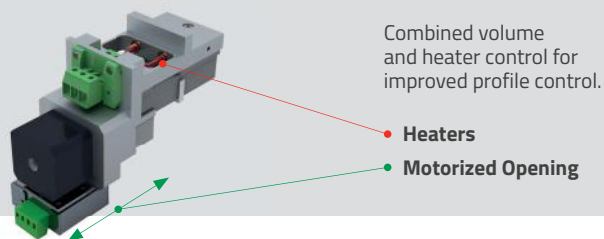
Higher bubble cooling capacity and improved bubble stability

Interchangeable Lip Set

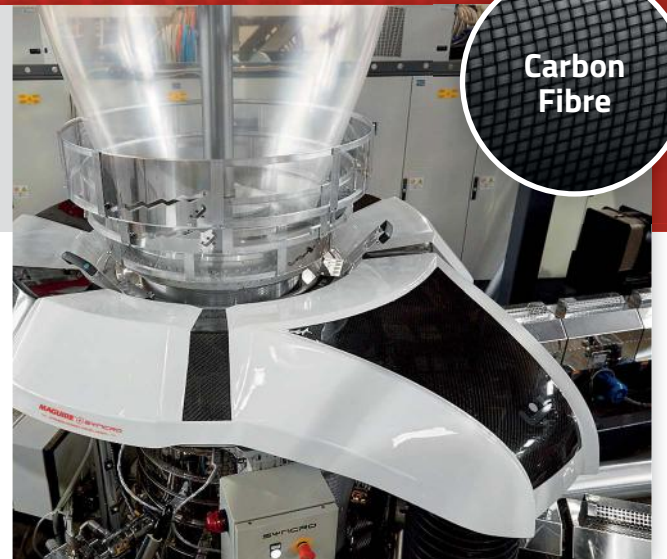
Operator-friendly lip set change over - greater production choice

Easy Maintenance

Unique ease of access to the APC control elements



- + Fast coarse / brute adjustment (Motors / Flow)
- + Fine adjustment (Heaters / Thermal)
- + Quick adjustment of bubble profile allows for scrap material reduction during start up
- + Each box has: 1 step motor and 2 heaters (230 W)
- + Combined volume and heater control for improved profile control
- + Tolerance deduction up to 75% at 2σ

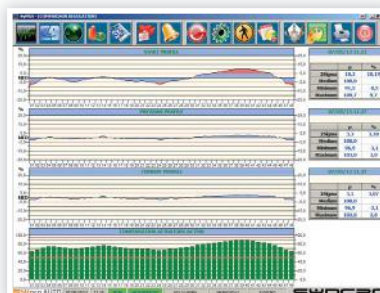


AIR RING CONTROL - SYNTROL INTERFACE

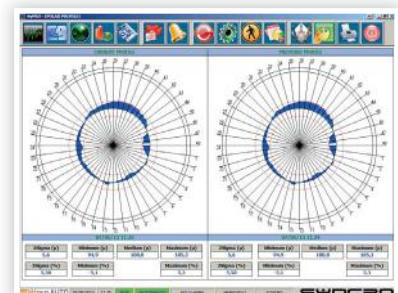
2 Sigma Trend



Start Profile, Actual Profile, Previous Profile

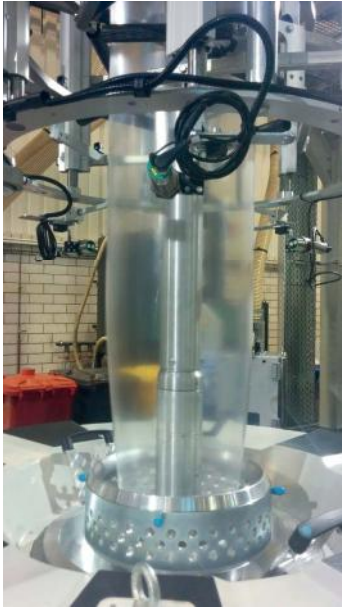


Polar Profile



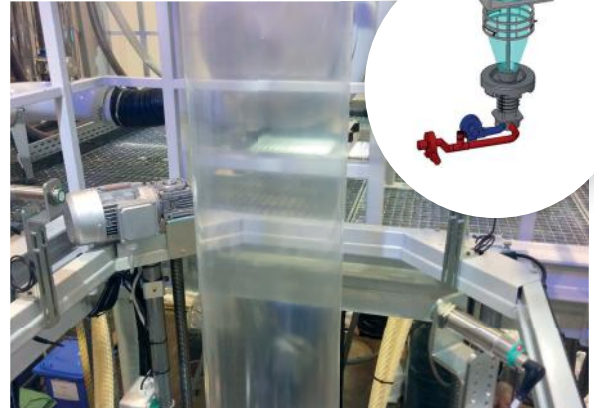
IBC & Layflat Control

SYibc is designed to automatically control and manage blower balance while coordinating all blower control functions. Vortyx is an integral cooling device designed to increase the cooling capacity. Syncro provides high precision and accuracy in bubble and lay flat control.



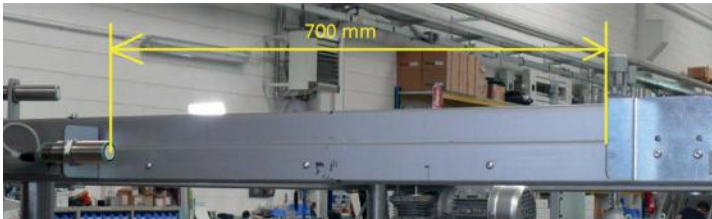
Gap Sensors

To maintain distance between cage and bubble using ultrasonic signals.



Lay Flat Sensor

Additional ultrasonic distance sensors (as optional) can be installed above the cage where the bubble is already formed to control lay flat and automatic opening / closing of the cage.



Ambient Temperature Compensation

Temperature compensation ultrasonic sensor installed at a fixed distance. This sensor provides a fixed reference to the others to control the ambient temperature variations.



Control Valve

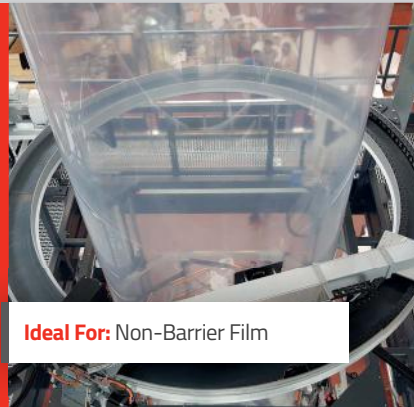
Customized control valve for high precision and accuracy in bubble stability and lay flat control.

Gauging Control

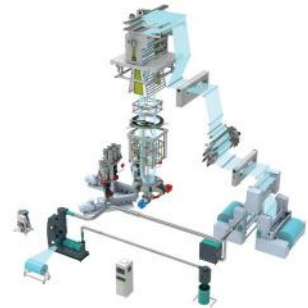
Wide range of scanning for film, cast and sheet.

SkYmex

- + Capacitive technology
- + Ideal for non-barrier film
- + Rotating system 360°
- + Encoder band 360°
- + Belt free motion
- + Ultrasonic distance sensor
- + Triple stage telescope
- + Available up to 14 m lay flat



Ideal For: Non-Barrier Film

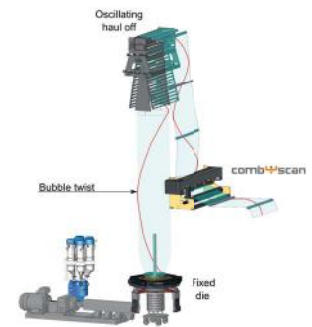


CombYscan

- + Inductive / capacitive technology
- + Ideal for barrier film and sensitive film
- + Measurement of total thickness



Ideal For: Sheet, Foil, Rubber, PVC



OptYscan

- + N.I.R. Near Infrared Technology
- + No need to change parameters or filters when changing type of film
- + Measurement accuracy 0,1 micron
- + Suited to flat or chill roll



Ideal For: Non-Barrier Film

RaYxscan

- + No radioactive compliance issues
- + Suited to stretch film, non woven and BOPP lines
- + Extremely precise measurement, down to 0,02 micron
- + Easy installation & maintenance



Ideal For: Non-Barrier Film

Calibration Basket & Haul Off Control

Wide range of cages and haul off for calibration of the bubble on blown film lines. Guaranteed perfect radial movement of the bubble to roll - to the centre with zero error.

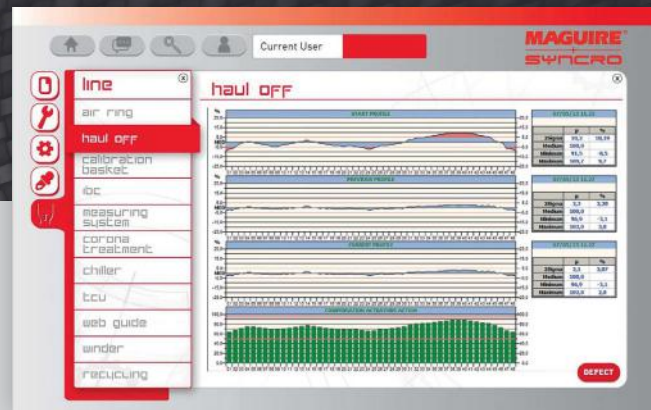
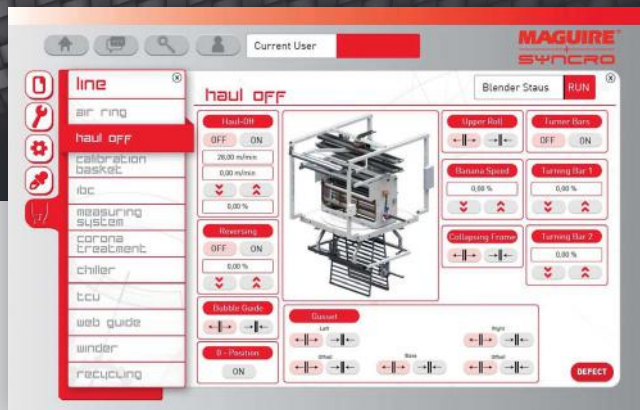
Haul Off

The AL Aligning System and the OP Oscillating Platform create a complete haul off unit. Based on the perfect axial rotation of 360°, the combination AL+OP guarantees a perfect defect distribution for the best reel planarity.

- + Key feature of the haul off unit is the collapsing frame
- + Manufactured with heavy duty structure
- + Easily customized based on product requirements

- + Collapsing frames are available with carbon fibre rolls or aluminium roll
- + The movement and setup is automated by electrical actuators

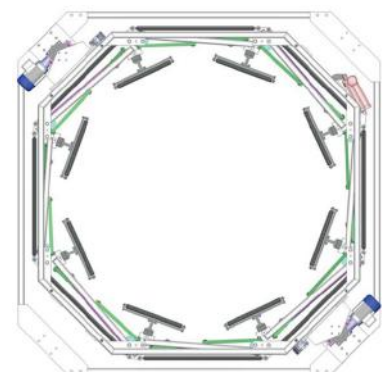
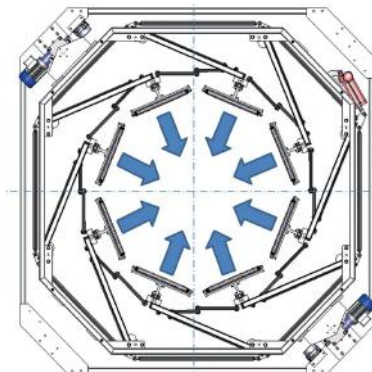
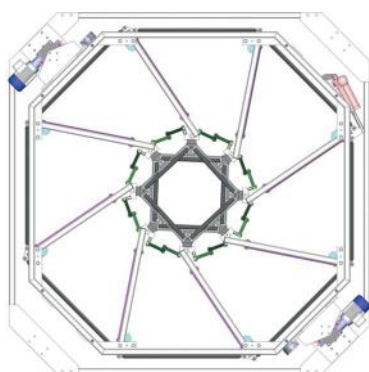
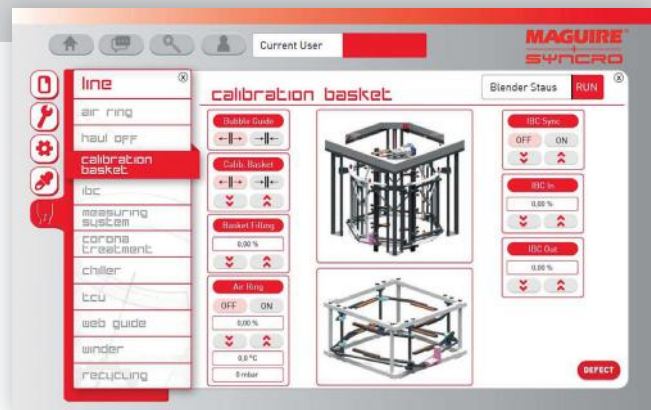
Haul Off Screens



Calibration Basket

M+S offer the latest generation of calibration baskets – Bsmart and Bwider bubble cages.

- + Interchangeable guides modules
- + Vertically adjustable by travelling screws
- + Quick guide rolls change over system
- + Radial movement to the centre is equal to 0°
- + Syntrol Plus stores the cage adjustments in the job receipt which helps the operator with repetitive jobs



Supervisory System – Syntrol Plus

Maguire+Syncro's supervisory system, Syntrol Plus, brings together all elements of your line into one point of control.

Touchscreens
come in 3
different sizes:
7", 15" and 21"

OPXS-SYNTROL - 07
7" Touchscreen

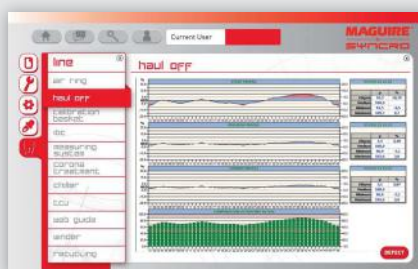
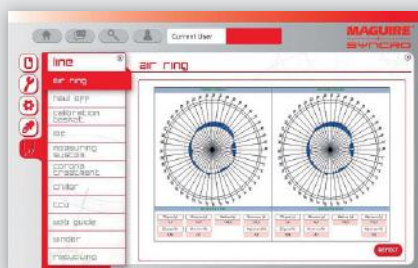
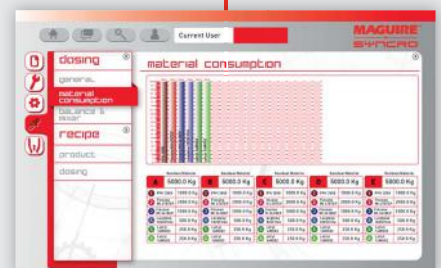
OPXS-SYNTROL - 15
15" Touchscreen

OPXS-SYNTROL - 21
21" Touchscreen

The total supervisory system allows multiple line controls to be visualized and controlled from 1 touchscreen to synchronize the whole line together, including:

- Blender Consumption And Dosing Units + Air Ring Control + IBC Control
- + Line Thickness & Gauging System + Extruder Temperature & Pressure
- + Haul Off Speed + Web / Cage Control

+



Agents & Distributors

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“

**MODULAR UPGRADES TO MAKE YOUR
EXTRUSION LINE PERFORM AT A FRACTION
OF THE INVESTMENT OF A NEW LINE.
UPGRADES, ENHANCED CONTROL AND
CLEAR SAVINGS.**

**STEVE MAGUIRE, FOUNDER AND PRESIDENT
MAGUIRE PRODUCTS INC.**

”





MAGUIRE[®] + SYNCRO

== EXTRUSION UPGRADES. CONTROL. SAVINGS. ==

MAGUIRE[®]
Intelligent Simplicity

