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Condenso

CONDENSING UNIT

Condenso is designed to condense the low boiling substances released from the plastic pellets, rPET or flakes during the heating process. The main features are:

- smart energy recovery to minimize the consumption of cooling water and heating power.
- PureTech technology to remove VOC and contaminants
- High condensing performance
- Smart function to maximize condensing process
- Easy maintenance
- Condenso modules can be installed in parallel for higher flow rates.

High filtration capacity with PureTech Technology

Auto adaptive control to maximize condensation process

Maximum energy efficiency, thanks to the integrated recovery system

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	STAND ALONE or with GP/GMP	WITH GNEXT
Pressure switch to detect filter clogging	opt	std
High energy efficiency kit	opt	opt
Advance performance kit	opt	opt
Quick couplers for water connections	opt	opt
Discharging pump with control of the collecting bin	-	opt

The droplet separator installed after the first condensing section guarantees the best performances

During the maintenance operations, the heat exchanger can be easily removed thanks to the quick connections

The discharge can be done by gravity or with an integrated pump and a two collecting tanks

		CND1500	CND2500	CND3500
Max process air flow	m³/h	1,500	2,500	3,500
Cooling water max flow rate	l/h	3,300	5,600	8,000
Cooling water inlet temperature	°C	15		
Max cooling power	kW	20	33	47
Min - max cooling water pressure	kPa	200- 800		
Water connection		1 – ½" Gas F		
Length/Depth/Height	mm	2,065 x 1,650 x 940	2,100 x 1,650 x 1,200	2,300 x 1,650 x 1,250

SoftBoost

Compact design and plant versatility

Reduction of heat loss and thermal stress of the resin

Maximising production and reducing waste

SPLIT HEATING HOPPER

Up to 1,400 l

SoftBoost is the innovative hopper designed for the rapid drying of regenerated PET with the aim of

- preserving the characteristics of the resin as much as possible
- obtain a high-quality finished product
- guaranteeing high productivity

The new, patented air channeling system allows the granule to be heated to the core in just 45 minutes to quickly bring it from 120 to 180 °C.

Completing the dehumidification directly or close to the injection molding machine allows the main dehumidification hoppers to be used at temperatures between 120 and 140 °C, thus limiting heat loss. At the same time, this makes it possible to work along the plasticising screw of the press at lower temperatures, reducing further thermal stress during moulding and limiting the production of scrap.

The reduced residence time of the material in the SoftBoost hopper, at the required working temperature, avoids unnecessary stress on the rPET and allows its mechanical, chemical and optical characteristics to be preserved.

The small size and versatility of the system allow fast material changes even during mold changes, greatly reducing downtime and maximising plant utilization.

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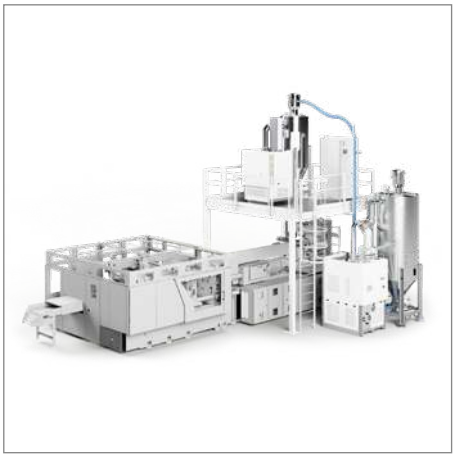
Dryer Equipped with No. 2 high temperature resistant blowers with inverter for speed modulation and energy efficiency

Processable material virgin or recycled granule

Construction material Stainless steel for all surfaces in contact with granules; insulating layer of 100 mm with 0.8 mm aluminum cover layer

The controls of the soft booster unit are integrated in the innovative HMI of the GenesysNext dehumidifier

Innovative, patented air diffusion system for deeper heating of the dehumidified granule



The soft booster unit can be positioned on the mezzanine or next to the press or according to the customer's plant requirements

	Max Output (kg/h)	Hopper volume (dm^3)	Max flow rate (m^3/h)	Heating power (kW)	Power supply [V/ph/Hz]
SBH600	750	600	1,900	27.5	400/3/50 380/3/60 440/3/60 460/3/60 460/3/60 UL 480/3/60 UL
SBH1000	1,150	1,000	2,800	64	
SBH1400	1,500	1,400	3,800	96	

Easypure

Improving pellet quality

Removing contaminations

Extend use of PCR, even in high demanding application

ODOUR REMOVING SYSTEM

Easypure allows a significant improvement in the quality of the recycled material, being integrated in the process of mechanical recycling, after the pelletising phase.

This is because Easypure removes the low boiling substances contained in the recycled plastic material, that can generate undesired smells.

Easypure is a flexible system since the main parameters can be adjusted according to actual process conditions.

The temperature, the amount of air and the residence time can be controlled and adjusted manually or in a completely automatic way.

Easypure operates in a continuous process thanks to a conveying screw that unloads the hopper and sends the deodorised material to the packaging area or to the plant's conveyor system.

For greater control of the deodorising process, Easypure can be equipped with the electronic nose developed by Piovan - OdorMinder - which provides an immediate evaluation of the effectiveness of the odor removal process from the treated granule.

Odor Minder thanks to its sensors and, following adequate “training”, is able to detect up to 25 odorous substances. It is characterised by: high sensitivity, high selectivity, good time stability, and high reactivity to gas presence. Odor Minder allows a perfect tracking productions with recycled polyolefin such as rPP, rPE, rHDPE, rLDPE.

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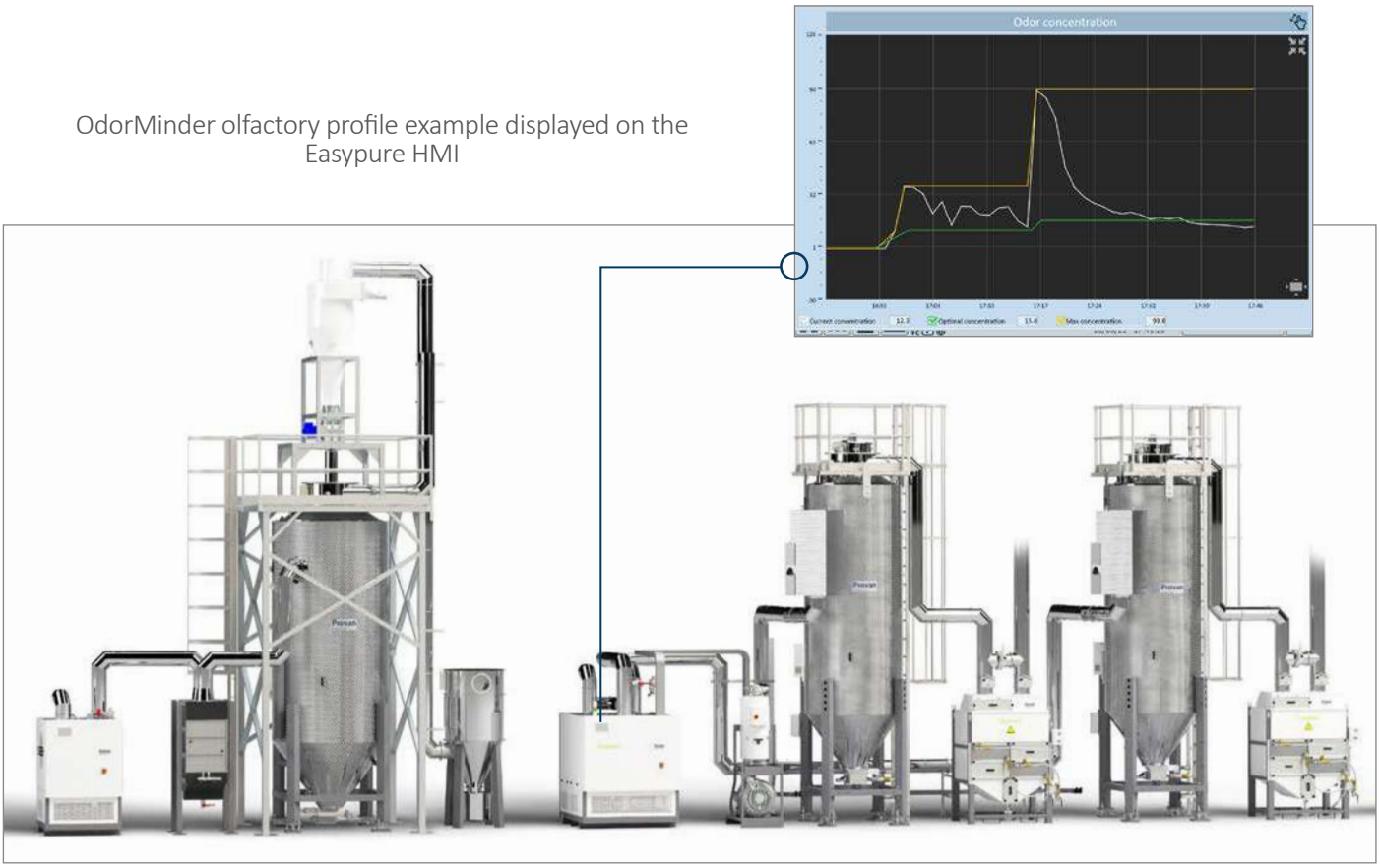
System control Piovan proprietary microprocessor or PLC system

System integration Control can integrate material feeding, post cooling and post conveying control to bagging station or storage (only with PLC)

Main options Material recirculation, filling level adjustable with load cells, process air flow regulation, process air post-filtering section (including cyclone filter and condensing unit), Odor Minder integration.

OdorMinder olfactory profile example displayed on the Easypure HMI



EasyPure is a multi-stage treatment with 1 or more hoppers for the hot phase, capable of delivering the material up to the temperature required for the customer's needs. It is an OdorMinder-driven system for maximum efficiency and effectiveness. The control system also manages material loading and delivery.
Optionally, it is possible to abate the VOCs extracted from the hot phase.

	Max throughput	Air flow	Hopper volume
Easypure	From 300 to 2,000 kg/h	From 800 to 6,000 m³/h	From 1,500 to 14,000 dm³

Sizing in function of material type and contamination level.

CR

CRYSTALLIZER

From 150 to 4,000 dm³

CR assures best crystallisation, improving the drying phase. The design has been specifically developed to exceed the material glass transition temperature and to guarantee homogeneous crystallization, assuring optimal flow of the material.

Crystallising hoppers are equipped with high efficiency planetary motor gears to guarantee low rotation speed of the vertical paddle shaft and minimize dust creation.

The vertical shaft is assembled with screw connections between the different paddle groups, in order to facilitate maintenance and the substitution of each single paddle.

The process is kept under control with a complete set of temperature probes and level sensors.

The access to the inner part is facilitated by a large hinged and insulated door and by the removable cone (configuration according to size).

CR crystalliser can run both with flakes and granules.

Suitable for granules, flakes and regrind materials

Robust and reliable

Homogeneous agitation of the material

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Level sensors	100% working level and extra max safety level; capacitive or vibrating type available
Feeding and discharging devices	rotary valves at crystalliser inlet and outlet or VA1/VA2 suction box for granules or VAH1/VAH2 suction valve for flakes
Options	50% working level for reduce throughput, vertical shaft with adjustable speed, temperature probe on process air return, Modbus or Profibus communication interface

Low speed rotating paddle shaft to keep material moving, with the minimum generation of friction and dust

Upper and lower rotary valves available as option to manage the feeding and the material discharge operations

Inspection door for cleaning and maintenance operations, with insulation layer and anodised aluminium external covering

	Hopper volume (dm3)	Hot air dyer model	Flakes configuration
CR150	150	ESP20	-
CR200	200	ESN40	
CR500	500	ESP60	Yes
CR1000	1,000	ESP120	
CR1300	1,300	ESP150	
CR2000	2,000	ESN200	
CR3000	3,000	ESP300	
CR4000	4,000	ESP400	

GenesysNext

ADAPTIVE DRYER

From 400 to 5,000 m³/h

High performance, fully automatic, mono hopper drying system that reduces the production costs.

Genesys Next is the cutting edge solution for

- Optimising the energy usage
- Scrap reduction thanks to continuous tracking of injection pressure

Moisture Minder measurements, online residual humidity in plastic granules, are integrated in the GenesysNext control.

GenesysNext is also a step toward circular economy: with PureTech filtration system, available as an option, an advance filtration of the VOC present in the process air is possible. This is especially required in case of recycled materials that can release low boiling substances during the heating or injection process and preserve the desiccant towers.

The control of GenesysNext is designed also to combine together two machines, with a single HMI, in order to extend the application range.

Final product costs reduction

Ideal for producing with recycled plastic

Absolute process stability

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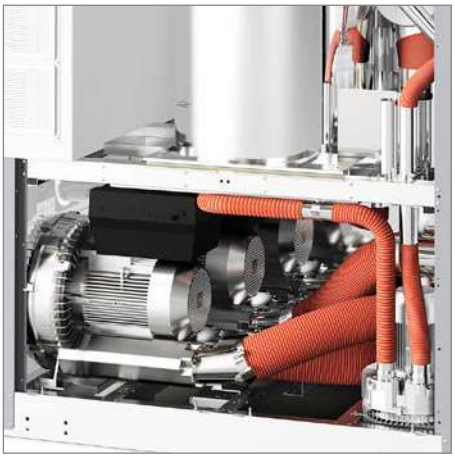
Range 400 –3,500 m³/h—multi-dryer solution available for higher throughput

Versions Dual-dryer, with electrical heater, combined heating (electrical + gas burner) or with gas burner

Options PureTech activate carbon process filter, regeneration circuit with/without water or with energy recovering valve, air conditioning for high temperature environments, Dew Point stabilizer, remote display, integrated energy meter.



Process blower with on board frequency converter and Can Open communication interface to be fully integrated in the control

Intuitive HMI with 10” coloured touch panel and PLC advance control with high computing capacity for a full process control

Optimized internal circuit with the new energy recovering valve for the regeneration circuit

	Air flow rate (m³/h)	Min flow rate	Reference PET chips production (kg/h)	Process pump	Frame	Heater	Electrical heater (V/Ph/Hz)
GN40	400	110	130	1	A	Internal	400/3/50, 380/3/60, 440/3/60, 460/3/60, 460/3/60 UL
GN50	500	110	200				
GN70	700	170	300		B		
GN100	1,000	230	400				
GN150	1,500	310	600				
GN180	1,800	380	760		C	External	
GN250	2,500	820	930				
GN270	2,700	610	1,070	2			
GN350	3,500	1,020	1,380				
GN400	4,000	1,350	1,610		D		
GN500	5,000	1,250	1,800	3	E		

CleanTech

HIGH-EFFICIENCY HEAVY-DUTY AIR FILTER

- High-efficiency filtration
- Low maintenance
- Maximization of production line lifespan

CleanTech is the new filter studied and realised by Piovan to maximize efficiency and protect equipment where air filtration is critical. The winning combination between selected materials and the innovative application of nanotechnology on filter elements not only allows the filter to hold a wide range of particulate matter, but also cuts maintenance costs and increases efficiency where the drying process is fundamental in achieving high-performance products such as in packaging, medical or food sectors.

In CleanTech the filter element is high-performance acrylic cellulose, and the surface is modified by a tangle of nanofibers. It holds particles with a diameter 37% smaller than those held by a typical filter. The benefit is the reduction of a wear and tear effect in the equipment. The filter lifetime is extended, avoiding clogging in the long run.

CleanTech filter is easy to maintain. The nanomesh limits filter clogging. Impurities or dust, that are lying on the surface, can be removed by a reverse air pulse resulting in a longer lifespan compared to typical filters.

GMP

Smart- Plus- Adaptive

DRYER

From 250 to 3,500 m³/h

The GMP range is available in 3 configurations SMART, PLUS and ADAPTIVE. The operator's interface is an 7", colour touch screen. The HMI offers access to all the system's components for specific adjustments or settings.

GMP is a single or multi hopper drying system, that can adapt and automatically control operating parameters, such as temperature, Dew point and flow rate of the process air, according to the production detected.

A flow meter, located in the air supply line, controls the air flow instantaneously and so the airflow is modulated automatically by the drying unit, resulting in optimum process operating conditions and energy optimization.

In case of many different raw materials to dry, one GMP dryer can be combined with a multi-hopper system. This is a highly flexible and cost effective solution.

Full auto-adaptive operation

Automatic air-flow adjust and stabilization

Regeneration heat recovery system

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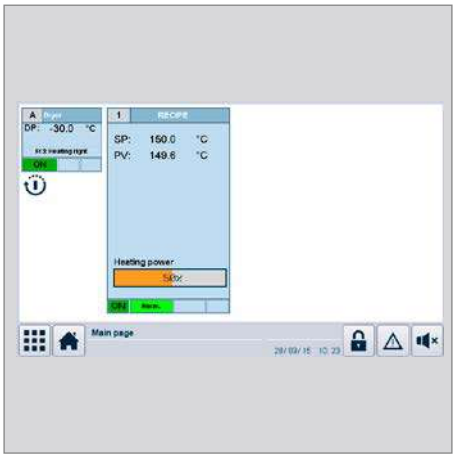
The GMP is designed to be efficient: the cooling water flow rate, for example, is managed with an automatic valve



Intuitive control with all the data to keep the process under control

The Dew Point stabilizer (option) allows an advance control of the process, increasing stability level

	Drying temperature	Process air dew point	Production	Process air flow	Resident time / Material level
SMART	Manual setting	Variable according to the regeneration phase	-	Fixed at 100% of capacity	Full filling level
PLUS	Auto set from material database	Stable with Dew Point stabilizer	Manual input	Auto set on production input	Level adjustable to control resident time
ADAPTIVE			Automatic detection	Auto set on production detected	

	Max flow rate (m³/h)	Min flow rate (m³/h)	Process pump	Frame	Electrical feeding (V/Ph/Hz)
GMP25	250	65	1	A	400/3/50 440/3/60 480/3/60
GMP40	400	100		B	
GMP50	500	150			
GMP70	700	200		C	
GMP100	1,000	250			
GMP150	1,500	400			
GMP180	1,800	450		D	
GMP250	2,500	650			
GMP270	2,700	675	2		
GMP350	3,500	875			

T | TN | TNN

DRYING HOPPER

Up to 2,500 l

The range of drying hoppers includes different sizes for production from few kilograms up to thousands of kilos.

Insulated drying hoppers characterised by optimum ratio between height and diameter for proper heat exchange. Full thermal insulation of cones, cylinders, inspection doors.

Made in stainless steel for preserving at best the processed material, the hoppers are easily accessible to all parts, thanks to the inspection door.

External cover in embossed anodized aluminium for maximum robustness.

Available on request a wide range of thermally insulated suction box.

Slide gate provided as standard.

Efficient thanks to the effective thermal insulation

Easy accessible

Optimum drying thanks to proper heat distribution and material flow

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The range of drying hoppers includes different sizes for production from few kilograms up to thousands of kilos

Each hopper can be completed with a complete set of accessories, such as manual or pneumatic slide gate, load cells, level sensor or ladder

	Volume (dm³)	Receiver interface	Insulation layer (mm)	Process connection (mm)
T10	10	Ø 280 mm	60	50
T30	20			
T50	50			
T75	75			
T100	100			
T150	150			
T200	200			
TN300	300	Ø 280 mm	60	50- 64- 88.9- 101.6
TN400	400			
TN600	600		100	64- 88.9- 101.6- 125
TN800	800			88.9- 101.6- 125
TN1000	1000			
TNN400	400	Ø 280 mm	60	88.9
TNN600	600		100	114.3
TNN800	800			
TNN1000	1000			
TNN1500	1500			125
TNN2000	2000			150
TNN2500	2500			

T1

DRYING HOPPER

From 3,000 to 13,500 l

Natural evolution of TN series, T1 hoppers are specifically designed for high capacity productions.

Insulated drying hoppers characterised by optimum ratio between height and diameter for proper heat exchange.

Made in stainless steel for preserving at best the processed material, T1 hoppers are easily accessible to all their parts, thanks to the inspection door.

External cover in embossed anodized aluminium for maximum robustness

Optimum drying thanks to proper heat distribution and material flow

Efficient thanks to the effective thermal insulation

Residence time control thanks to load cells or level sensor

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Feeding device — Integrated or external receiver; for integrated receiver two sizes are available according to hopper model.

Discharging device — Version for material unloading by gravity and as alternative VAH valve for the interface with a vacuum feeding system. Pneumatic slide gate included in both case

Level control — Capacitive continuous level sensor or load cells (compulsory load cell with Adaptive GMP or GenesysNext dryer)

Construction material — Stainless steel for all the surfaces in contact with granules; 100 mm insulation layer with 0.8 mm aluminium cover layer.

There are two solutions for the vacuum receiver: it can be a standard one with external installation or it can be totally integrated in the hopper

Load cell to monitoring the hourly production

	T1-3000	T1-3500	T1-4000	T1-4500	T1-5500	T1-6500
Volume	3,000	3,500	4,000	4,500	5,500	6,500
Integrated receiver	C50					
Inteface for external receiver	D.280					

	T1-7000	T1-7500	T1-8000	T1-8500	T1-10000	T1-10500	T1-12000	T1-13500
Volume	7,000	7,500	8,000	8,500	10,000	10,500	12,000	13,500
Integrated receiver	C100							
Interface for external receiver	D.280—D.450 mm							

TNS

DRYING HOPPER FOR FLAKES

Up to 16,000 l

TNS flakes are drying hoppers specifically designed to ease the flow of flakes with its specific geometry: acute cone angle and increased material discharge diameter.

Like any Piovan hopper, TNS for flakes assures optimum drying for consistent, best quality final products.

Double air outlet reduces air speed avoiding light material dispersion.

Designed to ease flakes drying thanks to proper geometries

Optimum drying thanks to proper heat distribution and material flow

Efficient thanks to the effective thermal insulation

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Discharging device Suction box VAH1 / VAH2 pneumatically actuated to work by batch and to avoid clogging.

Level control Load cells (integrated in the frame) or continuous capacitive level sensor (integrated in the lid).

Construction material Stainless steel for all the surfaces in contact with granules; 100 mm insulation layer with 0.8 mm aluminium cover layer.

The TNS flakes hopper can be completed with accessories such as load cells, ladder and upper platform o suction box VAH1/2

The TNS drying hopper can be integrated in a complete system, that includes dryer, cyclone filter and fume condenser

	TNS 2500	TNS 3000	TNS 3500	TNS 4500
Volume	2,500	3,000	3,500	4,500
Receiver interfaces	D.450 mm			

	TNS 5500	TNS 6500	TNS 7500	TNS 8500	TNS 10000	TNS 11500	TNS 13000	TNS 16000
Volume	5,500	6,500	6,500	8,500	10,000	11,500	13,000	16,000
Receiver interfaces	D.578 mm							

PTU | PTUN

DRYING HOPPER

Up to 2,500 l

PTU and PTUN can be combined in a multi-hopper drying system in order to guarantee maximum flexibility.

Each hopper is equipped with an electrical heater on board and the control allows the setting of a different temperature for each hopper; in this way different materials can be dried at the same time, using the right process parameters for each of them. The process air flow passing through the hopper can be adjusted by the operator or in a fully automatic mode according to the actual production with Modula.

With a multi-hopper drying system it is possible to dedicate a drying hopper for each material, making quicker and easier material changes without the need of cleaning and emptying operations. The presence of just one main dryer makes this solution efficient and cost effective.

The drying hoppers are realised according to the highest quality standard with complete insulation layer, smooth stainless steel surface in contact with the plastic chips and a wide door for maintenance and cleaning.

Efficient thanks to the effective thermal insulation

Easy accessible

Independent set point for each single hopper

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Each unit is complete with stand for floor positioning, electrical heater and piping lines

PTU-SET drying system have an high degree of flexibility but with competitive costs and compact installation layout

	Hoppers model	Max numb of hoppers	Independent heater and thermoregulation	Air flow rate indication	Dryer compatibility		
					DP	HR	GMP
PTUL-2	T30 T50 T75 T100 T150 T200	2	Yes	-	Yes	-	-
PTUL-3		3			Yes	-	-
PTU-SET		8	Yes	Yes	Yes	Yes	-
PTUN-SET		16			-	-	Yes

	PTU PTUN 300	PTU PTUN 400	PTU PTUN 600	PTU PTUN 800	PTU PTUN 1000	PTU PTUN 1500	PTU PTUN 2000	PTU PTUN 2500
Volume (dm^3)	300	400	600	800	1,000	1,500	2,000	2,500
Electrical heater (kW)	4-6-9-12	4-6-9-12-15	6-9-12-15-18	6-9-12-15-18-23.4	6-9-12-15-18-23.4	11.7-15.6-19.5-23.4		11.7 15.6 19.5 23.4 27.3

Split

SPLIT HOPPER

Up to 2,000 l

For installation sites where the ceiling height can be a limit, Piovan Group provides a specific series of hoppers of particularly compact dimensions.

The split hopper can be installed above the primary machine or on the ground.

The split hoppers are thermally insulated and can be provided with or without heating system leaving totally or partially the drying process to the upstream main one.

Compact solution for low ceiling installation sites

Easy to use by means of dedicated HMI or integration with dryers, inspection window and level sensors

Thermally insulated for energetic optimisation

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Discharging device Pneumatic slide gate for gravity feeding of the IMM

Level control Two HT level sensor to manage the refilling

Construction material Stainless steel for all the surfaces in contact with granules; 100 mm insulation layer with 0.8 mm aluminium cover layer

The split hopper is equipped with a local HMI, but it can also be integrated in the PET dryer control

The split hopper has two level sensors to manage the refilling process

The split hopper is placed on the IMM throat and the material is transferred by gravity

	Volume (dm^3)	Electrical feeding (V/Ph/Hz)	Heating power (kW)	Blower load power kW/50 Hz
T100V	100	400 / 3 / 50 460 / 3 / 60	1.5—2.5—3.5—6	1.5
T300V	300		12	2.2
T600V	600		25.2	3
TN1000S	1,000		27.3	13.3
TN1500S	1,500		27.3	13.3
T2000S	2,000		27.3	26.6

CDF

CONDENSING UNIT

From 1,000 to 6,000 m^3/h

- Effective solution to remove low boiling contaminants
- Ideal for processing post- consumer plastic
- Easy accessible collection tank

CDF is Piovan's solution for removing low-boiling contaminants from the process air, released during the drying process of post consumer products like rPET or flakes.

Metallic filters remove dust particles before the condensing phase. The cooling batteries then remove the low-boiling oils which drop into collecting tank easy removable.

CDF can be equipped with a water modulating valve for a fine tuning of water consumption, according to actual requirements.

Cyclone

CL55-CL65 / CL55A-CL65A

Ideal for processing dusty material

Cyclonic technology

Easily maintenance

FILTER

Cyclone filters remove dust in the process air of crystallising or drying systems.

It is a cartridge-less filter that works by means of cyclonic phenomena that separates the dust from air by a centrifugal effect.

The collecting bin can be easily emptied.

The advance version, CL55A and CL65A, is equipped with an integrated lifting device of the collecting bin: a wide lifting handle allows easy positioning of the bin for the connection to the cyclone body.

PET Preforms & Bottles | Rigid Packaging | Automotive components | Technical parts | Medical solutions | Thermoforming & Technical Sheets | Flexible Film | Pipes, Profiles, Cables | Fibres & Strapping | Recycling | Compounds

Maximum air temperature 200 °C

Applications For drying or crystallising circuit

Construction material Filter body: stainless steel; supporting frame: painted steel

Insulation layer for all the surfaces that can be accidentally touched by operators

Lifting device to put in place the collecting bin and to easily connect it with the cyclone body (advanced bin)

Manual valve to segregate the collecting bin from the process and to make possible the discharge operation without stopping the process

	Max air flow (m³/h)	Connections to process (mm)	Collecting bin volume (dm³)	Advance bin
CL55	2,500	250	105	-
CL65	4,500	300		
CL55 A	2,500	250		Yes
CL65 A	4,500	300		

GHP

GAS HEATER

Up to 240 kW

As alternative to traditional electric process air heater, a single hopper drying system can be equipped with a gas heating chamber, operating with high efficiency heat exchangers, patented by Piovan.

This solution enables the End User to considerably save operational costs, in the countries where gas is particularly price effective.

The temperature control is very precise thanks to the PID hot air temperature control, that assures a maximum variation of ±1°C on the set value.

Suitable gasses are:

- Natural gas
- Butane
- Propane
- LPG

The right solution where natural gas is more cost effective than electricity

Fine temperature control

Suitable for different type of gasses

PET Preforms & Bottles | Rigid Packaging | Automotive components | Technical parts | Medical solutions | Thermoforming & Technical Sheets | Flexible Film | Pipes, Profiles, Cables | Fibres & Strapping | Recycling | Compounds

Range	17 ÷ 240 kW / 400 ÷ 4.200 m³/h
Electrical feeding	115—230 V, 50-60 Hz
Max working pressure (bar)	0.45
Efficiency rate	85%
Fuel gas	Methane or LPG
Fuel gas pressure range (kPa)	4—15

The highest level of safety is guaranteed by three thermal switches

Complete set of pressure switches to check: minimum and maximum process air pressure, minimum gas pressure and burner ventilation

	Process connection (mm)	Fuel gas connection	Min - max power (kW)	Average consumption with methane / LPG* (m³/h)	Air flow range (m³/h)
GHP8	300	3/4”	17—55	4.2- 1.4	400- 1,400
GHP10			25 —100	6 - 2	650- 1,800
GHP12		1”	35—140	10 - 3.5	1,200- 2,800
GHP13			35—200	12 - 4.2	1,500-3,000
GHP14		1 1/4”	60—240	14 - 5	1,700- 4,200

* delta temperature between inlet and outlet of the gas heater: 110 °C

DPA 100-200

COMPRESSED AIR DEHUMIDIFIERS

Compact and energy efficient - products available for South America only

- Self-adaptation of dry air flow to each type of material
- Dew point values below -40°C
- Pre-inserted material database

DPA series dehumidifiers use compressed air to dry hygroscopic polymers.

The range consists of 3 models, with dehumidification capacity ranging from 5 to 40kg/h. The average dew point value is -25°C (can be extended to -40°C in the configuration with desiccant towers). The units are ultra-compact and can be installed directly on the processing machine. Applications on external supports are also possible upon request.

Only available in: BO, BR, UY, EC, PY, AR, CL, PE, VE, CO

XTLR Series

Crystallizing Dryer

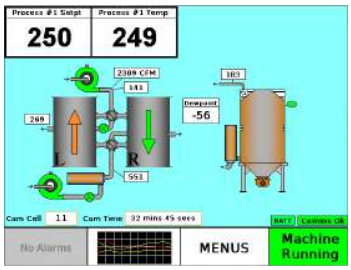
XTLR Series Crystallizer

The XTLR crystallizer incorporates many new features significantly improving the process stability of even the most demanding applications. The XTLR is engineered to maintain the velocity of the material, along with the air flow, in the critical glass transition zone of the crystallizer for superior transition into the crystalline state.
Removable breaker bars prevent the material from spinning while offering easy removal for cleaning. The unique particle separation system ensures that any lumps created during crystallization are separated prior to proceeding to the take away area.

Features:

- Energy saving - closed loop design
- Solid cone - mass flow design
- Gentle agitation
- Particle separation system - no clumps at take-off
- Detachable lower cone
- Oversized clean-out door
- Removable breaker bars
- FOCUSpro touch screen control

FOCUSpro Touch Screen Control



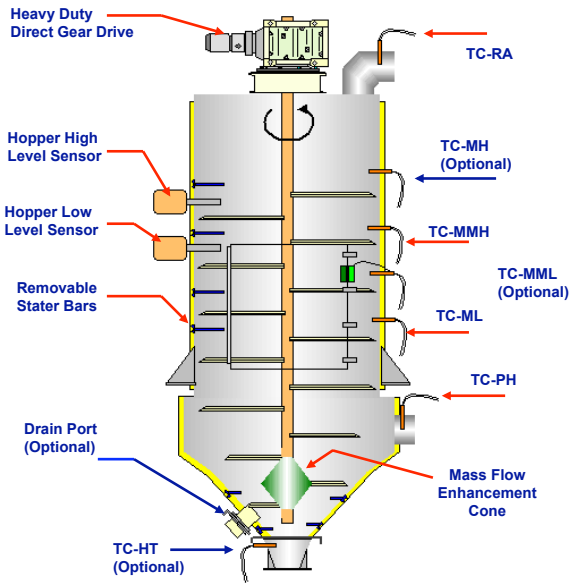
The FOCUSpro controller is an enhancement of the Focus controller – adding even more capabilities. In addition to maintaining all of the FOCUS controller's capabilities, the FOCUSpro has proportional analog capabilities.
Two proportional analog outputs allow it to control a gas-fired process heater and a process blower VFD. Two proportional analog inputs allow for process airflow and an analog hopper-level monitor.

Basic Operation

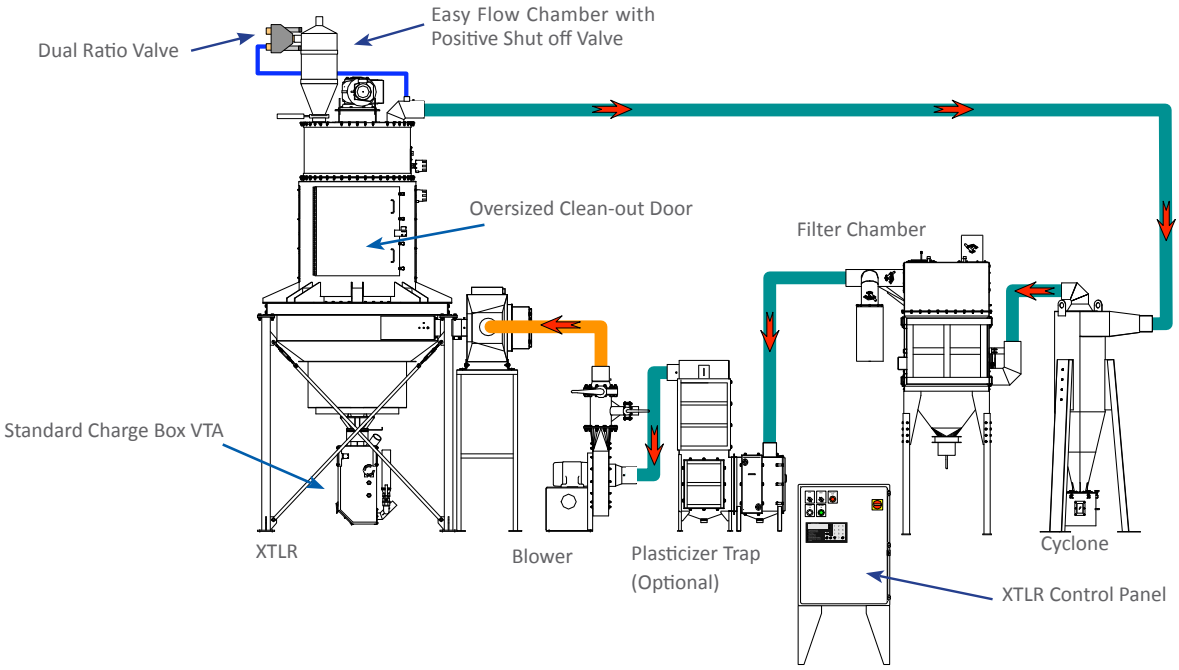
A crystallizer performs a relatively simple process in treating resin. Any amorphous resin will be raised in temperature using hot air for enough time to pass through the glass transition state. As the material surface becomes tacky the agitation of the resin will separate the clumps of agglomerated resin. The material regains its hard surface once it passes from the glass transition stage and can be dried and handled easily. Note that processing through this system is intended to produce adequate surface crystallization to enable further processing. The crystallization process will continue in the internal mass of the pellet as long as the temperature is high enough to facilitate the reaction. The goal of this process is to achieve enough surface conversion to regain a particle that will not stick to other particles. Once through this stage, the resin is suitable for transfer to a process drying unit prior to extrusion.

During the glass transition phase particles become very soft and sticky and are frequently rolled over and torn. Once crystallized the material becomes very rigid and can be easily separated with gentle agitation.

TC-RA	Standard	Monitors the return air temperature of the XTLR.
TC-MH	Optional	Pre-Crystallization temperature.
TC-MMH	Standard	Material management controlled temperature
TC-MML	Optional	Mid level temperature monitor.
TC-ML	Standard	Material low level temperature.
TC-PH	Standard	Process controlled air temperature.
TC-HT	Optional	Material discharge temperature.
Hopper High Level Sensor	Standard	Controls the fill level of the XTLR, and the vacuum chamber.
Hopper Low Level Sensor	Standard	Controls the machine RUN Permit, or the Down Stream Enable.



Typical Crystallizer System



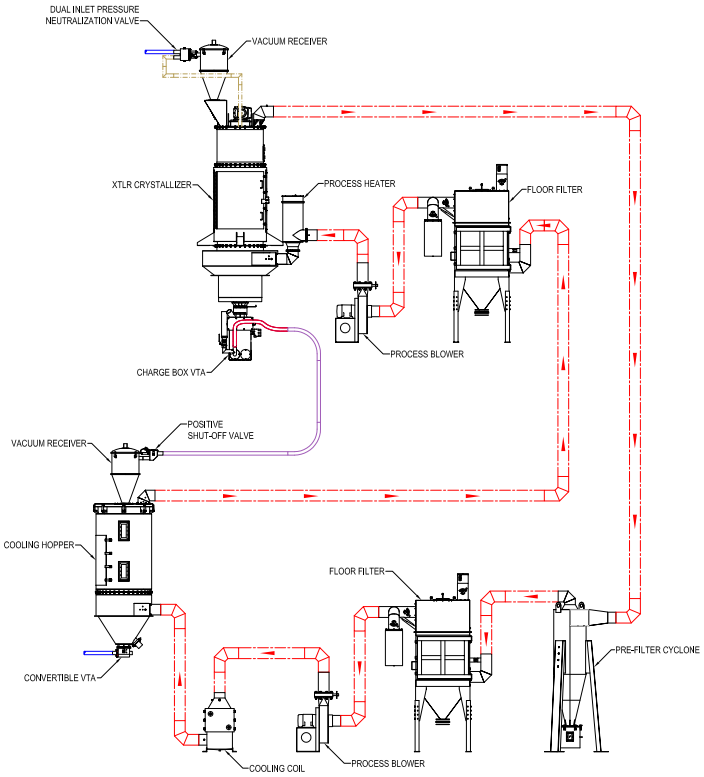
The Inline Crystallizer is used when the hot, crystalline resin is conveyed to the dryer and immediately processed. This conserves the energy already applied at the crystallizer and avoids storage of any resins. The raw material is loaded into the top of the crystallizer where it is controlled by the level switch in the upper part of the vessel. The vessel is agitated by a system of breaker bars that maintain a free flowing mix of untreated raw material and in process resin. As the resin passes through the crystallizing vessel, any remaining clumps of material are broken down to a size that is suitable for handling through the rest of the system. The bottom of the vessel is fitted with a knifegate valve or airlock metering device to control the flow of resin from the crystallizing vessel - a very important feature of the system since passage of untreated raw material from the crystallizer will result in a system blockage in the downstream machinery. The crystallizer system includes a blower and heater to deliver the required heat to the process. Proper crystallization occurs when the resin is at the glass transition temperature long enough for the reaction to occur. To conserve energy, the process air flows in a closed loop to recover the exhausted air from the crystallizer. The system includes protective and cyclone air filters as well as a gas or electric process air heater.

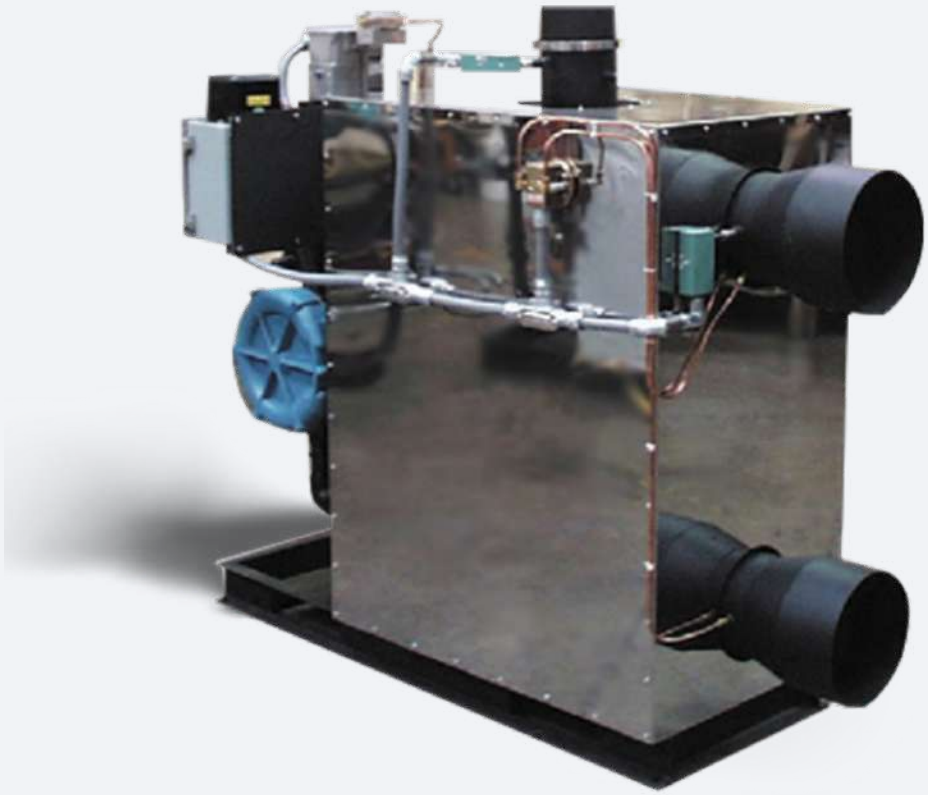
Typical Crystallizer System - Continued

System Cooling Crystallizer

When storing crystallized resin that will not immediately continue to a process dryer, the use of a modified Cooling Crystallizer system ensures the hot resin is cooled to a temperature low enough to avoid thermal damage once in storage. The basic crystallization process is the same as an inline crystallizer system with the exception that the resin discharge is connected directly to a second vessel with a cold air inlet at the bottom. Between the air outlet of the cooling vessel and crystallizer, a protective filter removes all particulate and an electric heater applies the necessary energy to start the crystallizing process.

Since we are recovering the hot air leaving the cooling vessel, the process will only consume a small amount of heat energy once it is in continuous operation. This type of system is recommended when resin will be processed more than 24 hours in advance of drying. Hot resin over 250ºF that is held for more than 12 hours will begin to deteriorate. This may be avoided by cooling the resin after crystallizing and then storing until needed. By using the energy from the cooler, the resin can be crystallized ahead of the process demand and yet not waste heat energy used in the crystallizing process.





GasPack

RETRO-FIT CONVERSIONS

Retro-fit conversions for process air dryers

- Exclusive non-ceramic burner
- Constructed of corrosion resistant stainless steel
- Digital temperature control

The Una-Dyn GasPack utilizes natural gas to heat process air entering the hopper of a process dryer or crystallizer. Flames are isolated from the process air flow using an indirect fired heat exchanger. As part of an original configuration or as a retrofit, the GasPack easily adapts to transform equipment into a clean natural gas system. Experience near zero emissions from the exclusive high intensity distributive flame burner.

Digital temperature control maintains temperatures up to 400°F with a throughput range of 500 - 4500 CFM.

• Process high intensity distributed flame radiant gas burner
• AGA/UL approved flame controller, valves and controls
• Compliant with national fire protection association (NFPA86) and FM
• Propane units optional
• Free energy analysis

Only available in: US

AutoMate

Adaptive Multiple Hopper Central Drying Systems

Benefits:

- Automatic modulated control for each individual drying hopper within the Central Drying Hopper (CDH) system
- Intuitive FOCUS-pro control system with large 10.4” touch screen interface
- Individual drying hopper MaterialSaver function
- Visual “ready to run” local indicator on the FOCUS-fit control tells you when material is ready to process
- Modular design for simple setup and operation
- System optimizes for minimal energy consumption
- Individual drying hoppers may easily be isolated from the rest of the CDH system for maintenance, cleanout, changeover, or set-up without disrupting online system operation or performance

A modular assembly consisting of hopper, stand, heater, temperature control, airflow ducting and branch valving are used to build multi-hopper central drying systems. Designed to comprise a grouped system assembly with common dimensions for a minimal footprint, clean appearance and ease of accessibility.
Pre-plumbing of dehumidifier supply and return ducts with branch airflow connections provide ease of installation and fit.

Standard hopper branch valving is automatic, making multi-hopper dryer airflow balancing trouble-free, as well as providing full hopper shut-off when individual hoppers are offline for clean-out and set-up.
Manually-operated branch valving and a deletion of the trunk and branch valving is available to fit any drying application.

AEO Valve

Top view- valves open

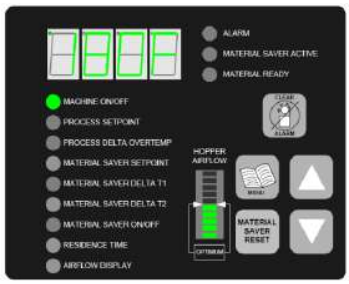
Dual-action, full-closed damper valves provide linear variability to supply and return branch line hopper airflow. Variable airflow performance is based on hopper airflow requirements or in response to energy consumption in hopper via precise closed-loop feedback control. Allows complete automation of hopper airflow settings and provides isolation when taken off line for clean-out and set-up. Driven by high-torque, direct-coupled drive with two-year component warranty.

Benefits:

- Analog valve control opens or closes providing tight control of airflow throughout its operational range
- Enables complete automation and optimization of the air flow to each individual drying hopper
- Provides drying hopper isolation from the CDH system when the hopper is taken off line for clean out or set-up
- Uses reliable high torque direct coupled drive to modulate valve operation
- Control through FOCUS-fit (local) and FOCUS-pro (central) control system
- Two year component warranty

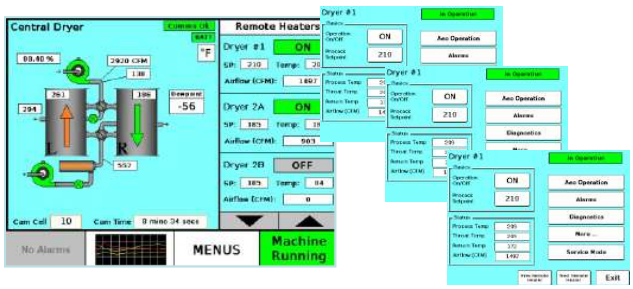
Control:

FOCUS-fit Control



The control provides for local process heat control at a drying hopper.
The local I/O control card provides support and control for the process heater, process blower, & an (optional) airflow control valve (AEO valve). It also monitors three temperature points (process, return, & hopper throat) as well as the process airflow and hopper material level.
The user interface card provides the operator with complete control & monitoring of the drying process. At a glance, the operator can always see the current process temperature in the digital display and likewise, an LED bar graph shows the current airflow condition. When the material has reached its desired process temperature, a blue “MATERIAL READY” LED is lighted. An output for an optional alarm beacon or horn is provided.
An on-board, real-time clock provides for timekeeping and logging of all operational parameters which can be imported into an Excel spreadsheet. The FOCUS-fit can also be connected to an available FACS system for complete control & monitoring from the FACS PC.

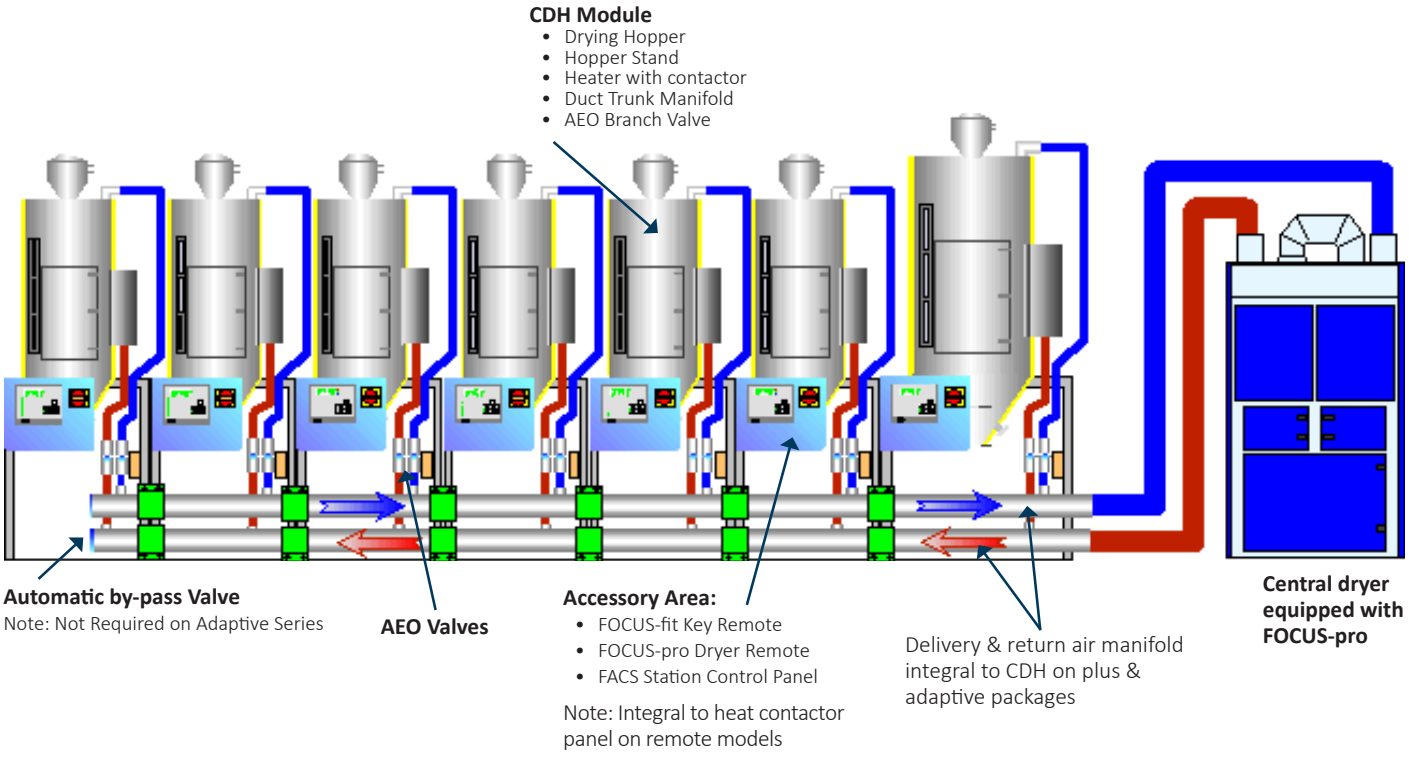
FOCUS-pro Comm Control



Benefits:

- Designed for use with DHD and PCT2 in conjunction with FOCUS-fit CDH hopper/heater systems
- 10.4” touch screen
- VFD process blower enables the energy-saving AEO features – communicates with FOCUS-fit individual hopper/heater controls
- Monitors airflow requirements of associated hopper on central drying system
- Password protection feature
- Batch commands included
- Extensive, built-in, self-diagnostics
- Datalogs up to 40 hours of operation
- Two dewpoint sensor types (ranges) supported
- Outputs for two alarm indicators

AutoMate – CDH Configurations



AutoMate – Performance Levels

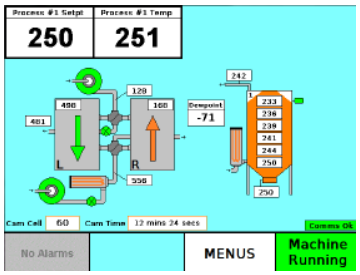
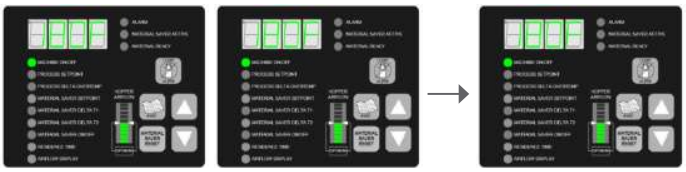
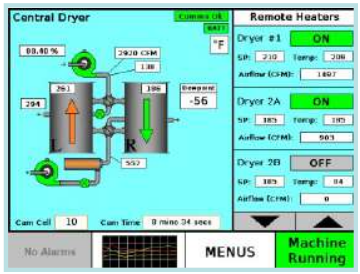
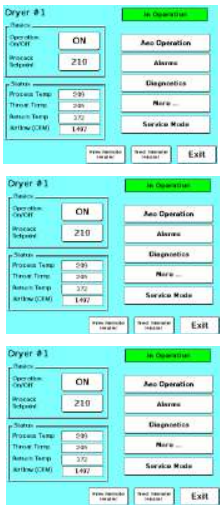
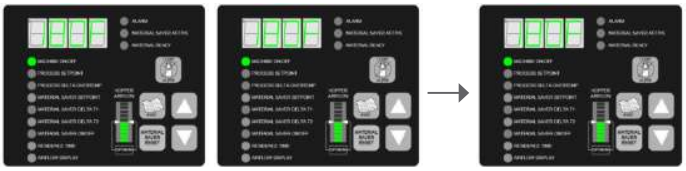
Smart:
Fixed airflow dryer unit equipped with FOCUS-pro controller ducted to stand-alone CDH hopper/heater units with manual air hopper balance adjustment. Individual CDH units controlled by full-featured FOCUS-fit Smart controller

Plus:
Fixed airflow dryer unit equipped with FOCUS-pro controller connected with CDH hopper/heater units equipped with AutoMate valve for automatic hopper adjustments. Hoppers equipped with FOCUS-fit SmartModule controller and can be set by specified airflow or energy absorption factor (return air temperature driven).

Adaptive:
Variable airflow dryer units are equipped with FOCUS-pro comm controller integrated with CDH AutoMate hopper/heater units equipped with AEO valve for automatic adjustments.
Hoppers are equipped with FOCUS-fit SmartModule controller and can be set by specified airflow or energy absorption factor (return air temperature driven).
Hopper control via pages in central dryer unit FOCUS-pro comm controller or optional local FOCUS-fit display.
The entire central drying system is optimized by adjusting central dehumidifying dryer unit performance in response to cumulative multiple hopper system performance.

Level	Dryer Control	Dryer Airflow	Hopper Aiflow Adjust	Hopper Heater Control	Hopper HMI	Hopper Balance per Airflow Measurement	Dry per Energy Absorption	End-of-Line Bypass
Smart	FocusPRO	Fixed	Manual	FocusFIT	FitKeyPad	Manual	Yes	Yes
Plus	FocusPROComm	Fixed	AEO Valve	Optional FocusFIT *Also via Dryer Remote FocusPRO	Central DryerFocusPRO Optional Focus Fit KeyPad	Automatic	Yes	Yes
Adaptive	FocusPROComm	Variable	AEO Valve	Optional FocusFIT *Also via Dryer Remote FocusPRO	Central DryerFocusPRO Optional Focus Fit KeyPad	Automatic	Yes	No - AutoMate Variable Airflow @ Dryer

AutoMate – Control Platform

	Dryer Control:	Hopper Control:
Smart	 FOCUS-pro	 FOCUS-fit / Manual Valves
Plus & Adaptive	  FOCUS-pro Comm	Blank Front Blank Front Blank Front Control via Dryer FOCUS-pro  Optional Local FOCUS-fit KEY / Automated Valves

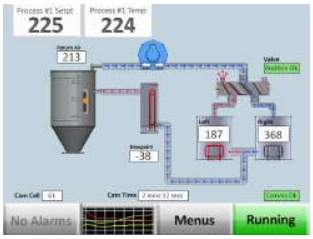
VANTAGE Series

Dehumidifying Dryer

Benefits:

- Aesthetic and functional energy efficient design
- Easy access to all electrical and mechanical components
- 5.7” color FOCUS touchscreen control with onboard graphing and datalogging
- Portable or press side configuration
- 7-day clock may be programmed to start drying resin during off hours
- Drying hopper sight glass for visual monitoring of resin level and flow
- Throughputs from 20-200PPH
- VANTAGE rotary valve for positive and stable air distribution to the desiccant beds
- Minimal moving parts - just two - VANTAGE valve and blower. Simple and reliable design

FOCUS Touch Screen Control



The FOCUS controller provides the latest in advanced capabilities for all small, electric dryers. Implemented using the most current technology, it provides for a small package that is nonetheless feature-packed and user-friendly. Its full-color, 5.7” LCD touchscreen provides for intuitive feel and comprehensive drying operations and diagnostics. All FOCUS controls are dual-LCD capable for both local and remote operation. Built-in data logging capability is included in all FOCUS controllers and important operating parameters can be graphed onscreen, downloaded into an Excel spreadsheet, and can be displayed and controlled by an available FACS monitoring system. An optional, plug-on, dual-VCL controller allows any FOCUS dryer to also provide conveying operations for one or two material chambers – no separate loader controller required.

Benefits:

- User friendly 5.7” color touchscreen control
- For dual drying hopper applications (electric only) supports dual dryer and dual loader control
- Extensive built-in, self-diagnostics included
- Supports two alarm indicators supported (audio & visual)
- Datalogs up to 40 hrs of key process variables
- SPI communications port included
- USB port for data download included
- On screen key process variable graphing

VANTAGE Valve

Benefits:

- Compact and simple design
- No seals, no maintenance
- Square drive shaft with more contact points
- Less pressure drop increases dryer performance and efficiency
- Mechanical break to insure accuracy of valve rotation

VANTAGE Stand

A sleek design permits easy access to all dryer, loader, and resin take away components.
The design supports cylinder mounted drying hoppers for stability and support. Models can be configured as portable or beside the press.

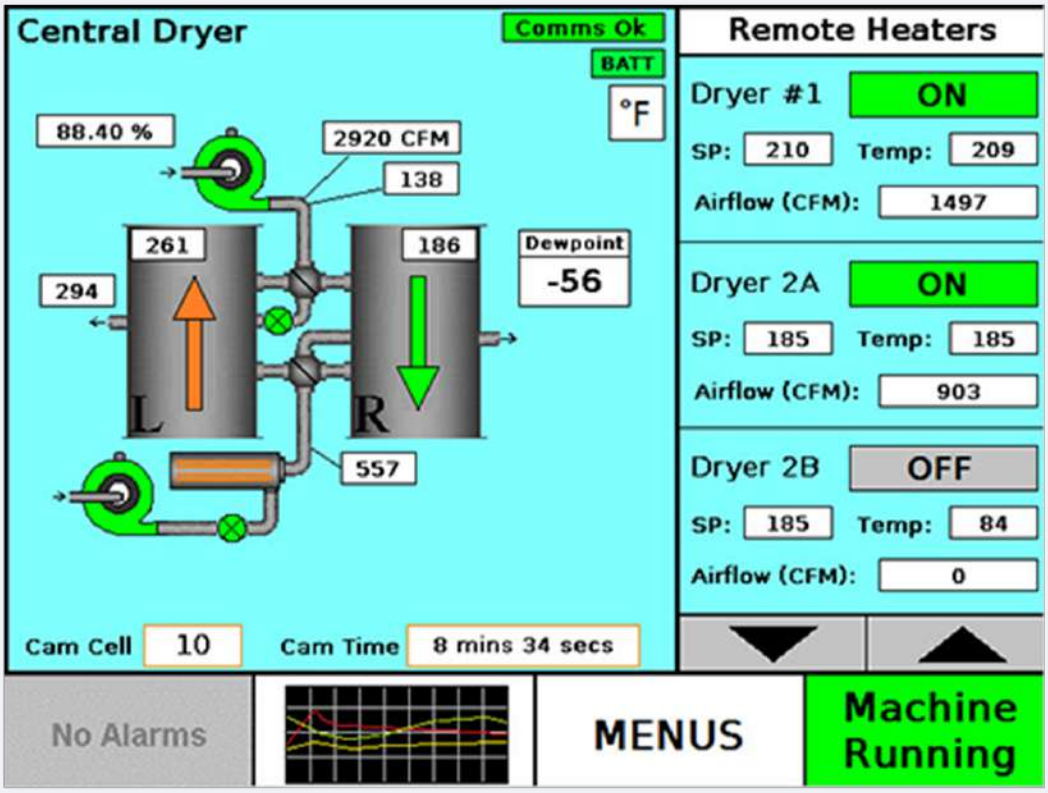
TSC Series Drying Hopper

Well insulated and energy efficient, the TSC series drying hoppers not only look great, they perform better! Unique design features ensure excellent distribution of dehumidified air throughout the hopper. A liftable, smooth interior solid cone, drain port, material shutoff and large double insulated access doors result in minimal cleaning and material changeover time. Reduced energy costs and design advantages add up to a drying hopper that is second to none in looks and performance!

Benefits:

- Mirrored stainless steel construction
- Insulated from lid to discharge flange
- No ledge interior for consistent resin flow
- No perforated diffuser cone
- Oversized double access door
- Large side view sight glass
- Material hopper slide gate - shut off material flow at the molding machine
- Quick material change
- Easy to clean

Lift Up Cone and No Ledge Interior



FOCUS Control

FOCUS SERIES CONTROLLERS

Everything you need to know at your fingertips

- Real-time, on-screen graphing of all key datapoints allows easy check of operational parameters
- Control regeneration by dewpoint or time settings
- Seven-day clock allows automatic operation on either a one-time or repetitive basis

The FOCUS series controllers provide the latest in advanced capabilities for dryers. Implemented utilizing the latest electronics' technology, they provide for a small package that is feature-packed and user-friendly.

All FOCUS controls are dual-LCD capable for both local and remote operation. Built-in data logging capability is included in all FOCUS controllers and important operating parameters can be graphed onscreen, downloaded into an Excel spread sheet, and can be displayed and controlled by an available FACS monitoring system. An optional, plug-on, dual-VCL controller allows any FOCUS dryer to also provide conveying operations for two material chambers – no separate loader controller required.
The FOCUS control comes in different models each with varying capabilities depending on the needs and machines.

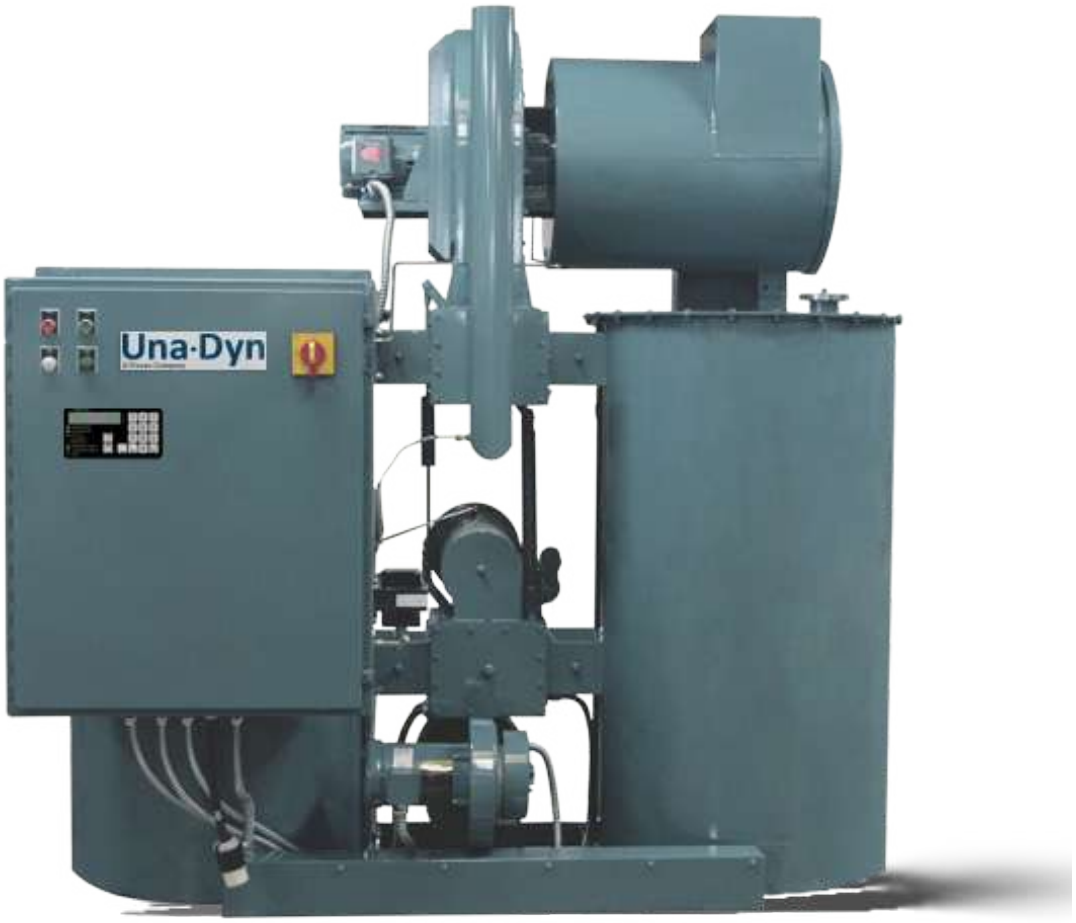
Models include:
FOCUS, FOCUS-pro, FOCUS-max and FOCUS-fit.

• A bright, full-color, touchscreen, graphic LCD displays all operating and dewpoint temperatures as well as other operating parameters
• Protect your material with the MaterialSaver function. Built-in data logging saves almost 2 days of detailed operating parameters and is easily imported into an excel spreadsheet
• Other features include dual heater control, choice between two different range dewpoint sensors, programmable alarms, password protection, system diagnostics, and SPI communications with integration into FACS

Only available in: US

DHD Series

Twin Bed Dryer



DHD - Twin Bed, Dehumidifying Hopper Dryer

Benefits:

- Energy efficient gas, electric or dual fuel dryer
- Open frame design for easy access to key components
- High performance change over valves
- Separate blowers for process and regeneration air
- High efficiency filtration
- FOCUSpro touchscreen control
- Low Dewpoint -40ºF
- Airflow up to 5,000 CFM

Energy efficient, solid construction

Double wall construction provides energy savings, safety and durability. A double wall process heater circulates cold air around the heater core to preheat the air and cool the outer surface of the heater housing at the same time. The heat, that escapes on most dryer designs, is recovered and returned to the process air. Regeneration heaters are insulated with a high temperature ceramic material to provide even more energy efficient operation.

Precision, high performance air valves

Improve overall energy and operational efficiency. Precision air distribution valves reduce pressure loss across the system with our exclusive valve tensioning system. Air valves are seated with a high-temp silicone seal to eliminate cross contamination of process and regeneration air streams.

Reliability

Low watt density, multiple tubular heater elements increase heater life and permit continuous operation, even if an individual element has failed. Element replacement is simple with the removal of a few single-bolt clamps.

Easy maintenance

Make a quick check of the desiccant through the desiccant sample port. The port may then be used to either remove or refill desiccant to its proper level automatically.

Conserve valuable floor space

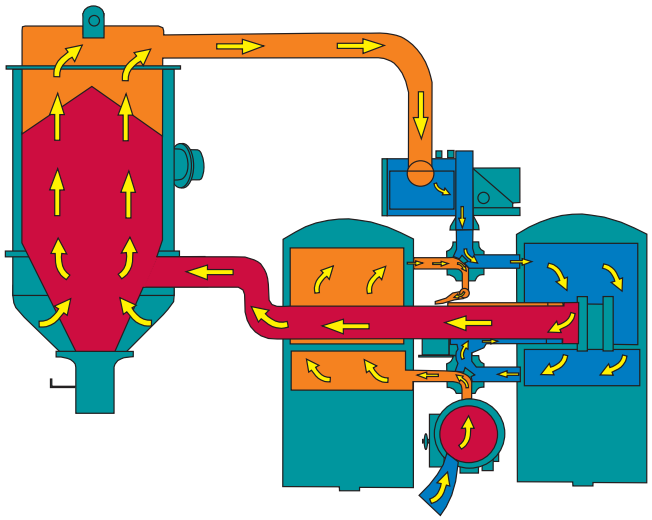
Machine-mounted air filters save on valuable floor space and each has an observation window for easy filter inspection.
High efficiency, pleated filters are conveniently located for quick change - no tools required!

Operation and Control

Solid bed dryer operation

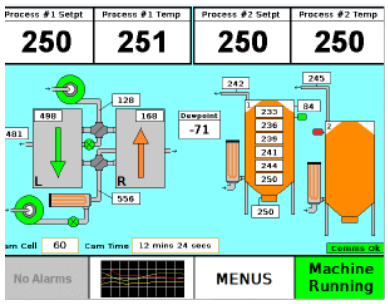
Performance, reliability and simplicity are key to the Una-Dyn solid bed dryer design. Uniform air flow ensures maximum contact between the moist air and the desiccant resulting in improved performance and energy efficiency. Controlling the dryer cycle on dewpoint demand increases cycle time and substantially reduces regeneration energy consumption.

High performance change over valves control air flow to and from the “on-line” active tower and regeneration tower for precision control of the drying process. The DHD standard processing temperature range is 180° to 250° F. Optional heaters and cooling coils permit drying at temperatures below 180ºF or up to a maximum of 375°F.



Controls:

Una-Dyn offers a variety of dryer controls, from basic microprocessor control to full featured modules that are part of a factory control and monitoring system. Requirements for dryer controls differ from one plastics processor to another but Una-Dyn controls are designed and manufactured “in-house” to maintain exacting standards and unsurpassed quality across the board.



FOCUSpro control

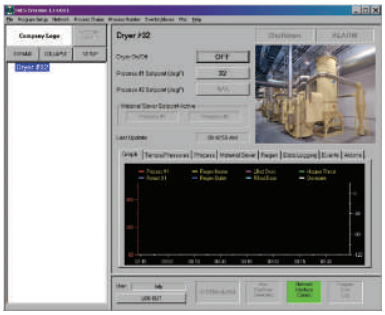
The FOCUSpro controller is an enhancement of the FOCUS controller – adding even more capabilities. In addition to maintaining all of the Focus controller’s capabilities, the FOCUSpro has proportional analog capabilities. Two proportional analog outputs allow it to control a gas-fired process heater and a process blower VFD. Two proportional analog inputs allow for process airflow and an analog hopper-level monitor. An optional, plug-on, dual-VCL controller allows any FOCUSpro dryer to also support conveying operations on two material chambers – no separate loader controller required.

F.A.C.S. - Factory acquisition control system

F.A.C.S. permits control of material conveying systems as well as monitoring of Maguire blenders, Silo Inventory, and most SPI compatible equipment such as dryers, mold temperature control units and chillers. The two-wire power and communications network, in conjunction with the Windows platform, makes this system economical, easy to install, setup and operate. The system is also simple to expand and re-configure.

Import drawings and pictures to show system configurations or locations of equipment throughout the plant using a PC. With process chain analysis and verification it is possible to set up, monitor and record setpoints, equipment performance, define material flow paths and equipment selection with a single command.

F.A.C.S. has full graphing capabilities and a built in SQL database to process all your information and store it with a complete set of reports for immediate or future use.



Hoppers

Una-Dyn's drying hoppers are designed to promote the mass flow of a wide variety of materials from virgin pellet to thin flake and other difficult-to handle regrinds. Hopper design incorporates the use of a solid cone in the hopper transition zone resulting in better air distribution, efficient and fast material drying, improved mass flow, and a hopper that is easy to clean.
Drying hoppers up to 20,000 cubic feet capacity are standard with larger capacities available for custom requirements. All hoppers include the following feature benefits:

Benefits:

- Solid mass flow inlet cone
- Laser-cut access doors
- Heavy-duty lid and door clamps
- Insulated side walls and access door
- Clear sight glasses
- Material drain-out port with slide gate
- Slide gate material shut-off on discharge
- Designed for easy and quick cleaning and maintenance
- Mezzanine or stand mounted

TSC Hopper

The TSC drying hopper features a stainless steel hopper and solid cone design. The smooth interior finish has no lips or ledges to retain or inhibit the flow of pellets. Excellent air distribution and material mass flow characteristics assure even, consistent drying.

EF Hopper

Scientifically designed to handle hard-to-flow materials, the steep solid cone, split chamber design produces an even flow of material and a hopper that is easy to clean.

USC Hoppers

Steel construction, incorporated with a split hopper design, allows the upper two-thirds of the chamber to be completely removed from the lower section. Ideal for applications utilizing virgin pellets, free flowing regrinds or a blend of these materials, USC Drying Hoppers are also available in stainless steel construction for all sizes.

Central Drying

Una-Dyn has built its reputation on tailoring systems to the client's unique requirements and budgets - planning for both current and future needs. Together, with the Integrated Systems Group (I.S.G.), Una-Dyn can design and engineer a central drying and material handling solution that is the best in the industry .

Una-Dyn uses state-of-the-art equipment and components that are flexible, efficient and reliable.
Save valuable plant space, energy and manpower. Inquire today!

HD Series

FULLY AUTOMATIC HOT AIR HOPPER DRYER

- Suitable for drying non-hygroscopic plastic materials
- Continuous hot air-stream
- Available in gas or electric

A self-contained, fully automatic Hopper Dryer utilizing an integral heater, blower and digital temperature control.

An excellent pre-heater for non-hygroscopic resins or in cold atmosphere applications or attached to a material hopper.

Air heater provided with dependable controls with digital display to maintain desired process air temperature (maximum air temperature to 250° F). Efficient air filter included.

• Air inlet filter
• Dependable sheathed heating elements
• Pre-heater to maintain constant material temperature

Only available in: US

PCT3 SERIES

Dehumidifying Dryer

Benefits:

- Stable process temperature and dewpoint throughout the entire drying cycle
- Process temperature/ resin temperature from the throat of the drying hopper ±2°F degrees
- Dry air dewpoint to -100°F resulting in faster resin drying times
- Closed loop dryer designed for immediate start up, no need to dry cycle
- FOCUS-max touch screen control
- Gas, electric or dual fuel configurations
- 300 cfm - 3,000 cfm units available
- Drying temperatures from 120°F to 375°F
- Data logging of key drying process parameters
- Minimal moving parts with a small footprint
- Advanced heat recovery and energy management that reduces utility usage resulting in lower energy cost. These include:
  - Variable frequency blower
  - Regen heat recovery
  - Water saver valve

The PCT^3 series dehumidifying dryer is designed with advanced PCT technology offering one of the most energy efficient dryers available on the market today. Using the proven PCT^2 drying platform, PCT^3 offers a closed loop drying system with minimal footprint, low dewpoint and a stable, steady performance throughout the entire drying cycle. In addition, the PCT^3 features an adaptive energy optimizer, a regeneration heat recovery system and an automatic cooling water control valve for significant energy savings!

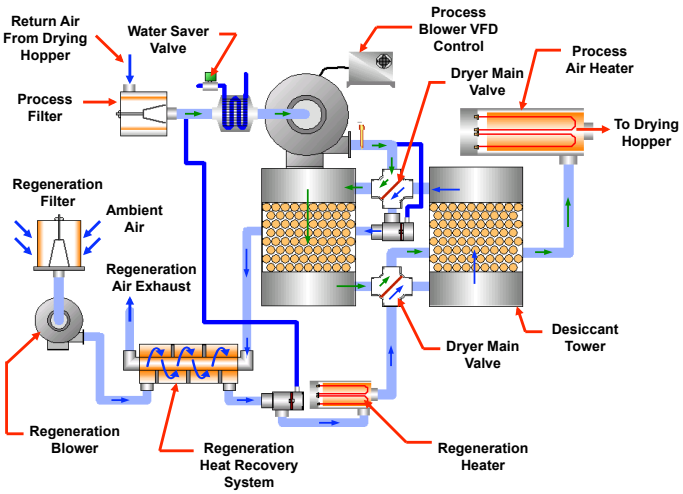
The PCT^3 generates a dewpoint down to -100°F, for exceeding the industry standard. The longer tower cycle time results in a reduction of wear on components, and less dryer maintenance. In a 24/7 facility drying beds typically cycle about 2000 times a year. The PCT^3 cycles as little as once a day or 365 times a year! Additionally, the PCT^3 adjusts dryer performance to what is needed down to dry the resin.

Minimal moving parts, up to -100º F dewpoint, self-adjusting drying and rock steady setpoint temperature throughout the drying cycle are just a few performance features of this universal resin dryer. Many additional features make the PCT^3 one of the most reliable, stable and energy efficient resin dryers being offered today. Standard throughput range for the PCT series dryers is 300-3,000lbs/hr with temperature range from 120-375º F. Gas, Electric or Dual Fuel available.

Adaptive Energy Optimizer

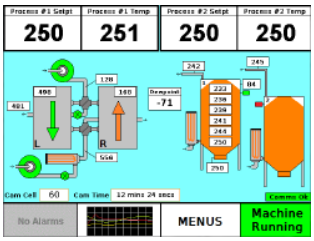
The AEO (Adaptive Energy Optimizer) automatically adjusts the performance of the dryer to optimize daily usage. Built-in smart technology requires less operator interaction and involvement; the AEO optimizer automatically determines the right amount of dry air required to optimize the resin drying process. The AEO also does the following:

- Ensures material is not over dried
- Maintains return air temperature at an optimum level for maximum adsorption by the desiccant
- Automatic process air flow regulation
- Maintains a constant air flow proportioned to the throughput rate



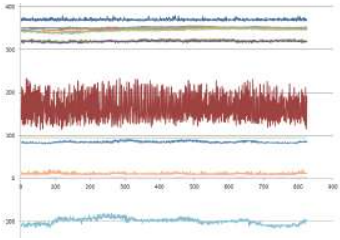
CONTROLS:

FOCUS-max Touch Screen



The FOCUS-max control is standard on the PCT[3] series. The FOCUS-max is our top-of-the-line and most-capable controller. In addition to maintaining all of the features offered in our FOCUS line, the FOCUS-max has been equipped with sixteen channels of thermocouple inputs, as well as sixteen channels each of discrete inputs and discrete outputs (I/O). These channels allow for temperature profiling of the drying hopper as well as the most comprehensive control capability.

Datalogging



The Datalogger is an events recorder powered via 24vdc that is designed to monitor the critical functions of a twin-tower. It automatically logs, as sampled data (electronically in a nonvolatile form), key operational parameters. Recorded data is obtained by means of uniform sampling and time/date stamped. Sample rate is adjustable from 2 seconds to 2 minutes for a maximum sample of 6 days. The Datalogger communicates over separate data paths and records key parameters making it transparent and non-invasive. The Datalogger transfers all pertinent information without interfering with operation or SPI communications.

BD Series

DEHUMIDIFYING MEMBRANE DRYER AND DRY AIR CONVEYING SYSTEM

Engineered for medical or high tech clean room applications

- 5,10, or 15LB insulated, self draining drying hopper
- Air filtration to .01 microns
- -40ºF dewpoint instant dry air

Especially engineered for medical or high tech clean room applications, the BD Series dehumidifying membrane dryer and dry air conveying system packs a powerful performance guaranteed to deliver an energy efficient operation.

Constructed of all stainless steel and stainless steel contact points, the BD Series dryer features a small compact design and Instant -40ºF dewpoint dry air. Particulate and coalescing filters provide filtration to .01 microns with an optional HEPA filter available. Removable diffuser cone promotes superior air distribution, mass flow, easy clean out and a vertical sight glass for easy visual check of material levels.

• Easy to use and simple to maintain, instant on
• Membrane low dewpoint
• Complete with AutoLoad Jr II for resin conveying
• Stainless steel/stainless steel contact points
• Press side or machine mounted

Only available in: US

PCT² Series

Dehumidifying Dryer

Benefits:

- Stable process temperature and dewpoint throughout the entire drying cycle
- Process temperature/resin temperature from the throat of the drying hopper ±2°F degrees of setpoint
- Dry air dew point to -100°F resulting in faster resin drying time
- Closed loop dryer design eliminates the need to dry cycle even after extended machine shutdown
- FOCUSpro touch screen control
- Gas, electric or dual fuel configurations
- 300 cfm - 5,000 cfm units available
- Drying temperature range 120°F - 375 °F
- Data logging of key drying process parameters
- Minimal moving parts for easy maintenance

PCT² series dehumidifying dryers utilize PCT technology and are designed to be both energy efficient as well as conserve floor space. A closed loop drying system, insulated desiccant beds and material saver features deliver more drying efficiency per unit of power than any other comparable dryer on the market today.
The PCT² maintains a stable material temperature and low dewpoint throughout the drying cycle to -100ºF dewpoint. The optional hopper throat vent adapter delivers dessicated air to the lowest section of the drying hopper. PCT technology delivers a stable process temperature with resin temperature exiting the throat of the hopper at ±2°F.

A quick start-up and stable process results in unsurpassed energy and production efficiency. The PCT series dryers are the industry's best performing, most reliable high capacity dryer available today. With a throughput range of 300 - 5,000 PPH, the PCT² has a built-in cooling coil, with a processing temperatures range of 120ºF - 375ºF.
Laser cut, high temperature air valves and high quality components. Minimal moving parts, self diagnostics and easy access to all components improves longevity of high wear components and eliminates their maintenance. In addition many other standard features of the PCT² make this dryer one of the easiest systems to use and maintain.

PCT - Pulse Cooling Technology

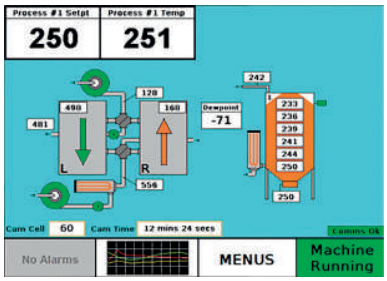
For over 50 years Una-Dyn continues to be a leader in delivering the most innovative drying technology to the plastic processing industry.
PCT technology results in remarkably accurate and stable material and process dewpoint temperature setpoint throughout the drying cycle. Being energy efficient is more important now than ever before. Una-Dyn's design maintains the simplicity of the dual bed design incorporating minimal moving parts.
Many additional mechanical and control features of PCT minimizes energy consumption, and brings to market one of the most energy efficient stable and high performing drying systems available today.

Benefits:

- Gas or electric process & regeneration heaters
- Precision laser cut high temperature valves
- Insulated desiccant towers
- Minimal moving parts
- FOCUSpro touch screen control
- Universal or Easy Flow solid cone drying hoppers with superior mass flow capability
- Precision cut hopper doors

CONTROLS:

FOCUSpro Touch Screen

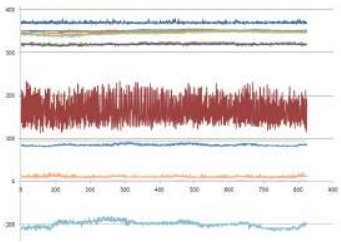


The FOCUSpro control is standard on the PCT2 series. FOCUSpro is an enhancement of the FOCUS controller – adding even more capabilities. In addition to the FOCUS controller's capabilities, FOCUSpro has proportional analog capabilities. Two proportional analog outputs allow it to control a gas-fired process heater and a process blower VFD. Two proportional analog inputs allow for process airflow and an analog hopper-level monitor. An optional, plug-on, dual-VCL controller allows any FOCUSpro dryer to also support conveying operations on two material chambers – no separate loader controller required.

OPTIONAL CONTROL:
FOCUSmax touch screen control.

If reliability, simplicity, and performance are what you're looking for, **call Una-Dyn today at 701.490.7000.**

Datalogging



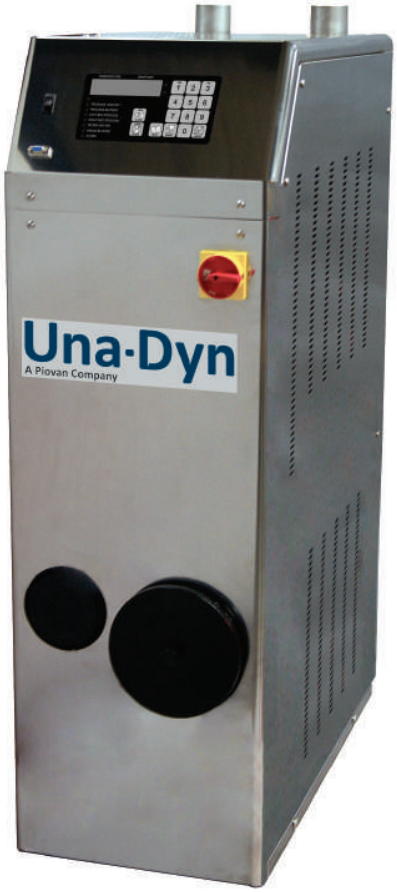
The Datalogger is an events recorder that is designed to monitor the critical functions of a twin-tower dehumidifier. It automatically logs key operational parameters. Recorded data is obtained by means of uniform sampling and time/date stamped. Sample rate is adjustable from 2 seconds to 2 minutes for a maximum sample of 6 days. The Datalogger communicates over separate data paths and records key parameters making it transparent and non-invasive. The Datalogger transfers all pertinent information without interfering with operation or SPI communications.

TR Series

Rotary Wheel Dryer

Benefits:

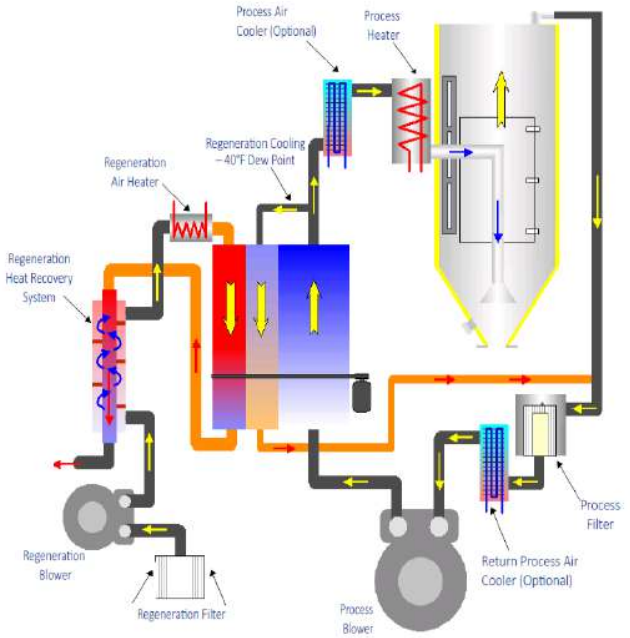
- Attractive stainless steel enclosure
- Advanced molecular sieve technology
- High pressure side channel blowers
- Advanced dryer filtration system
- FC-TR control
- Datalogger, dewpoint control and MaterialSaver functions
- SPI protocol and communications
- Interface with FACS control and monitoring



The TR series rotary wheel dryer is manufactured using advanced molecular sieve technology. Energy efficiency, simplicity and reliability are built into every function. Stable temperature and dewpoint control throughout the drying cycle ensures a solid performance capable of handling some of the industries most demanding resin drying applications. In addition, a unique heat recovery system lowers energy costs by up to 30% over more conventional rotary wheel drying systems on the market today.
All components are housed in a durable mirrored stainless steel enclosure with side panels that are easily removed for access to key components. Using two side channel blowers, one blower delivers air for the process heating and cooling zones while the other is used for regeneration. The wheel assembly is housed in stainless steel, compact enclosure and features a positive grooved belt to ensure uniform, constant rotation. Using only six watts of power, the chamber rotates approximately one revolution every seven minutes.
In addition to a low power wheel drive, the TR series features an advanced heat recovery and filtration system. Ideal for the most stringent and demanding applications, such as clean rooms, medical and optical applications, these features ensure optimal energy consumption and protect the wheel by eliminating virtually all dust.

Simple Dryer Operation in Three Continuous Phases:

Return air from the drying hopper passes through the active zone of the wheel and releases moisture.
Higher temperature regeneration air passes through the wheel regeneration zone, reactivating the zone.
Process air is used to cool down the wheel reactivation zone to condition the wheel for rotation into the active zone thus also rotating the existing saturated active zone back into the regeneration zone.

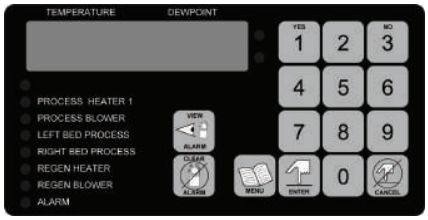


The TR series dyer is available in four sizes, TR-50, TR-100 TR-150 and TR-200. A variety of configurations are possible, depending on the application specifications.

Portable, beside the press or small central drying with multiple drying hoppers, there is a TR series rotary wheel dryer to meet your low throughput application demands!

CONTROLS:

FC-TR control



The FC-TR control is standard on the TR series rotary wheel dryer. An impressive list of features include:

- Datalogging capability
- Control of two process heaters
- Dewpoint control with or without the use of a dew-point sensor
- SPI protocol and RS 232 serial communications
- SQC function - includes averaging and standard deviation calculation of up to two drying hoppers
- Seven day clock - Store up to 10 batch commands
- Three phase current monitoring with optional current donuts
- Communications with Una-Dyn's FACS (Factory Acquisition Control and Monitoring System)
- Optional remote display

Download, store and use data to assist with troubleshooting issues or to schedule preventative maintenance that may not be obvious during routine maintenance.

More control for efficient use of energy, time and other valuable resources!

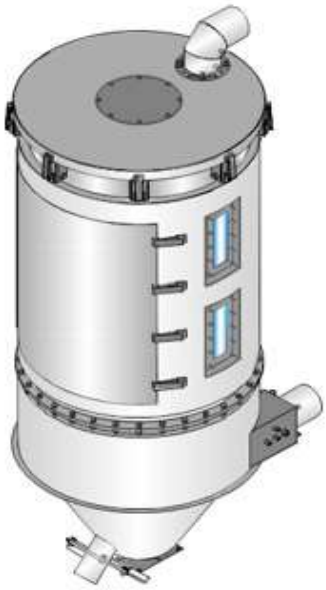
SHC, USC & EF Series

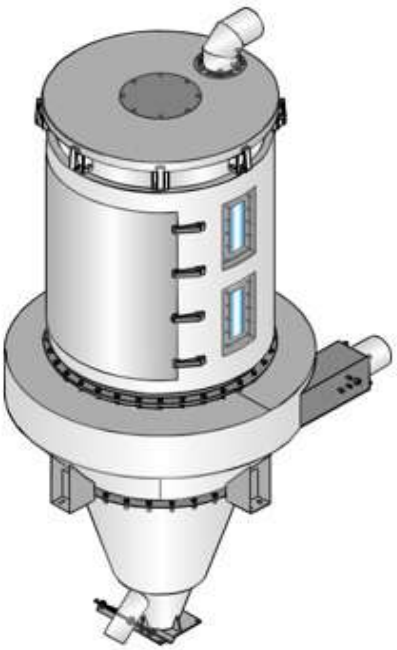
Drying Hoppers

Advantages:

- Solid cone hopper insures mass flow
- Laser-cut Hinged Clean-Out Door
- Heavy-duty lid and door clamps
- Fully insulated, cone to lid, including the access door
- Clear sight glass windows
- Material drain-out port
- Slide gate material shut-off
- Machine, mezzanine or stand mounted
- Three models available

The USC, SHC and EF series drying hoppers are designed to promote the mass flow of a wide variety of materials. The use of a solid cone in place of a perforated diffuser cone results in better air distribution, quick and efficient material drying, improved mass flow and a hopper that is easy to clean. For processing virgin pellets to thin flake and other difficult-to-flow material, there is a drying hopper to meet your most demanding needs.





SHC Hopper:

- 0.7 to 28.6 cubic feet capacity

USC Hopper:

- 32 to 575 cubic feet capacity

Easy Flow Hopper:

- 32 to 343 cubic feet capacity
- Difficult-to-flow materials such as regrind and flake

GenesysMax

ADAPTIVE DRYER

From 400 to 3.500 m³/h

GenesysMax is the high performance, fully automatic, mono-hopper drying system that reduces production costs and can achieve a Dew point up to-60 °C.

It is the cutting-edge solution for:

- Optimizing the energy usage
- Reducing scrap thanks to an adaptive system that allows the full modulation of the process parameters, such as temperature, dew point, and flow rate of the process air, according to the production detected.

GenesysMax is suitable to dry the main hygroscopic resin that needs dehumidification before injection molding such as PET and rPET.

It is equipped with a PLC control system and an intuitive HMI with a display of 7”, which drives the operator in easy configuring and monitoring operations.

GenesysMax controls different connected devices such as the primary hopper and receiver, secondary split hopper, and mold dryer

Final product costs reduction

Auto adaptive operation for an absolute process stability

Suitable for a wide range of polymers, including recycled materials

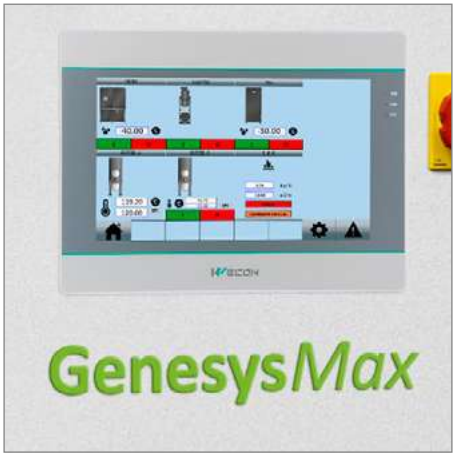
PET Preforms & Bottles | Rigid Packaging | Automotive components | Technical parts | Medical solutions | Thermoforming & Technical Sheets | Flexible Film | Pipes, Profiles, Cables | Fibres & Strapping | Recycling | Compounds

Range 400 –3.500 m³/h—multi-dryer solution available for higher throughput requirements

Versions with internal and external electrical heater

Options Puretech activated carbon filter, electrical cabinet with air conditioning, Dew point stabilizer, remote control panel.

Together with Moisture Minder GenesysMax allows complete monitoring of residual humidity



Intuitive HMI with 7'' touch panel and advanced PLC for extended control to other connected devices

Homogeneous air flow inside the desiccant towers. High-efficient molecular sieves

	Max flow rate (m³/h)	Min flow rate (m³/h)	Process pump	Frame	Heater	Pipe diameter (mm)	Electrical heater (V/Ph/Hz)
GM40	400	140	1	A	Internal	150	400/3/50 380/3/60
GM50	500	260		B			
GM70	700	300					
GM100	1.000	400					
GM150	1.500	620					
GM180	1.800	880		C	External	250	
GM250	2.500	1.200					
GM270	2.700	1.250	2				
GM350	3.500	1.760				300	

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Белгород (4722)40-23-64
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Брянск (4832)59-03-52
Владивосток (423)249-28-31
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