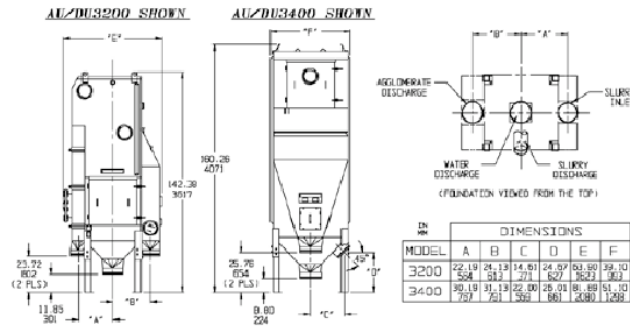


# CARTER DAY

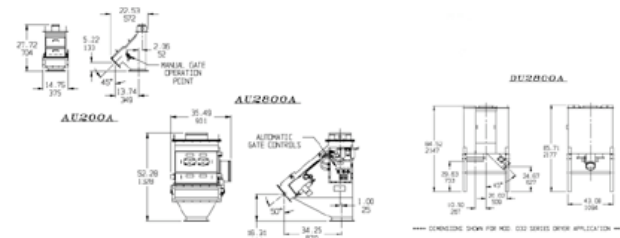
## AUDU & 12/32/50 DRYER DIMENSIONS

# CARTER DAY

### AUDU 3200/3400/4000



### AUDU 2800



## SPINAWAY DRYER SYSTEMS

### AUDU

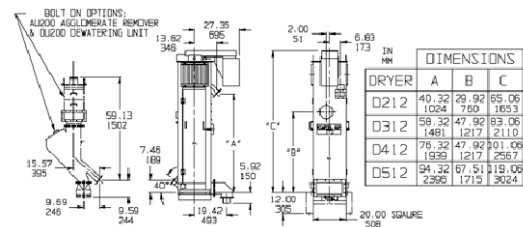
2800 3200 3400 4000

### DRYERS

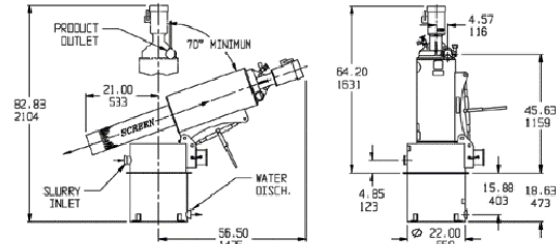
12 Series 32 Series 50 Series

### SCALPERATOR

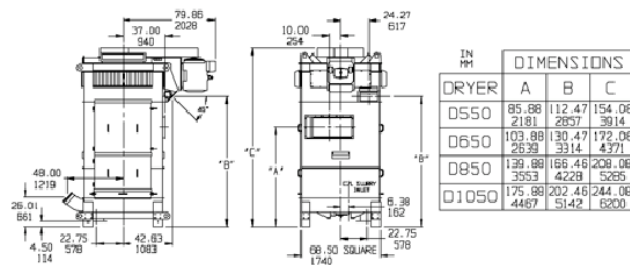
### 12 SERIES DRYERS



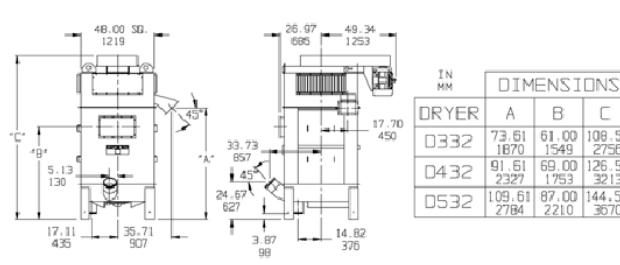
### MICRO DRYER



### 50 SERIES DRYERS



### 32 SERIES DRYERS



**CARTER DAY INTERNATIONAL**  
 500 73rd Ave. N.E. Minneapolis, Minnesota 55432  
 carterday.com Tel: (763) 571-1000 Fax: (763) 571-3012



# CARTER DAY

## PRINCIPLES OF THE DRYING SYSTEM

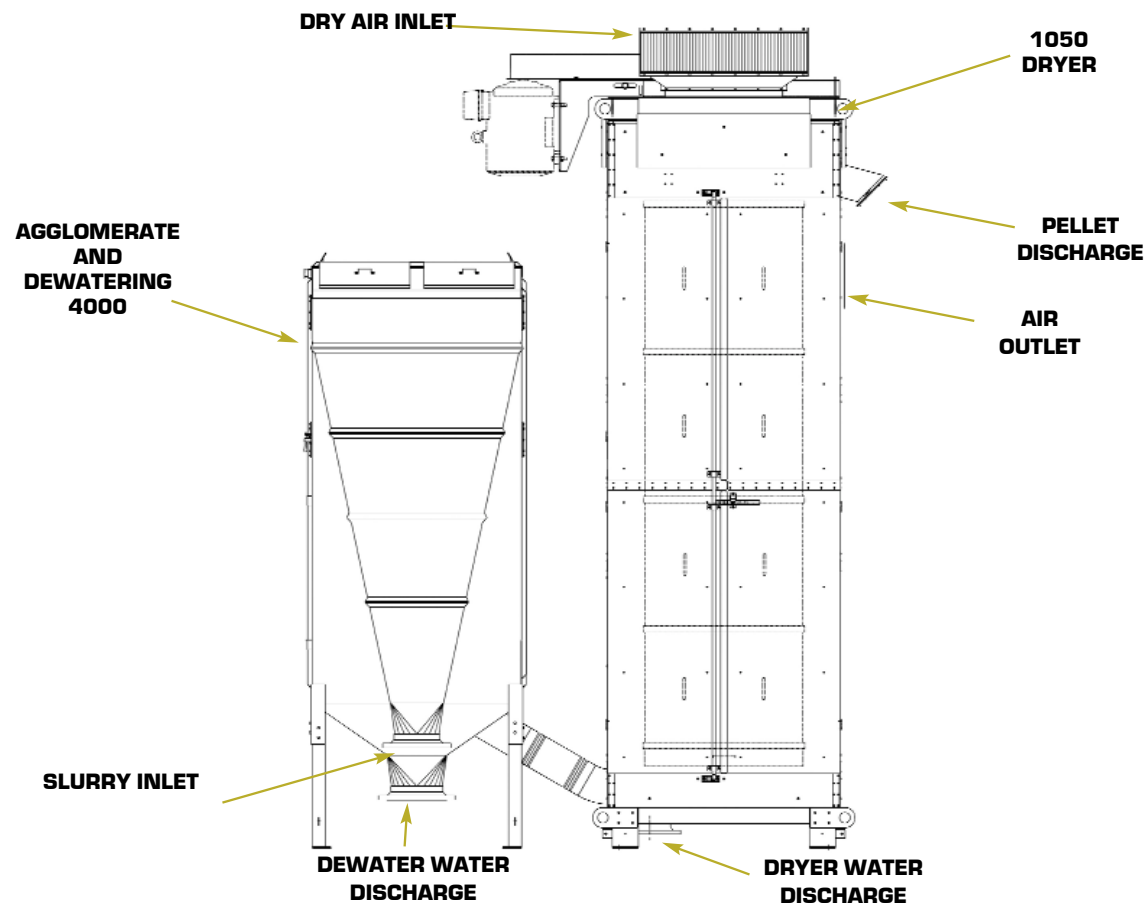
**Carter Day** has been manufacturing quality processing equipment for over 100 years. We continue this tradition with our line of Stainless Steel Dewatering, Drying and Cleaning Equipment for the Plastics Industry. The Stainless Steel SpinAway Dryer separates pelletized products from water slurries in a continuous operation. Products can be discharged from the SpinAway dry enough to go directly to packaging or storage with surface moisture as low as 0.05%.



The Pellet Drying Process takes place in four stages.

- (1) Agglomerate Removal prevents agglomerates greater than 1/2" (12.7 mm) from entering the SpinAway dryer and damaging the rotor blades and screens.
- (2) Dewatering removes 85% to 95% of the water which reduces dryer load and increases input rates.
- (3) SpinAway Dryer removes surface moisture from pellets or recycled plastics.
- (4) Forced Air removes water vapor as dry air counter-flows through the pellets as they pass through the top half of the dryer.

No other manufacturer matches the Carter Day SPINAWAY Drying System for superior agglomerate removal, dewatering and drying of pellets, such as: LDPE, LLDPE, HDPE, PP, NYLON, EPS and RECYCLE.



# CARTER DAY

## SCALPERATOR

### STREAMERS AND FINES REMOVAL



The Stainless Steel Scalperator features scalping and aspiration in a single machine which provides a high capacity method for removing streamers, agglomerates, and fines in a single pass.

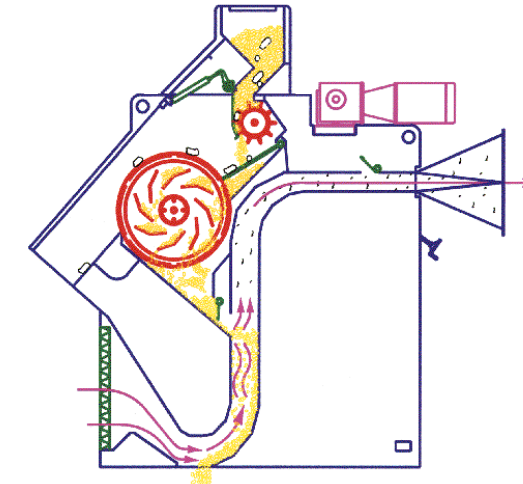
Incoming pellets pass through a rotating perforated scalping reel eliminating streamers and other oversized material. The high volume aspiration then removes fines from the pellet stream.



A **molded urethane feed roll** accurately controls the process feed rate and provides a positive shut-off. The urethane feed roll has high wear resistance and its smooth surface resists build-up of product and contamination.

The **agglomerate plate** ensures high capacity scalping performance and minimizes agglomerates and other particulate buildup behind the scalping reel.

**Performance-engineered aspiration chamber** and flow-modulated air lock valve provides high efficiency cleaning of the product.



**Rotating Scalping Reel** is constructed of a stainless steel perforated screen with 1/2" (12.7 mm) diameter holes. The perforated screen design eliminates blinding of the scalping reel.

The **HTD Drive** provides increased reliability and decreased downtime with minimal adjustment and maintenance.

Simplified design provides for easy clean out and routine maintenance. Windows allow the operator to monitor cleaning performance.

# CARTER DAY MICRO DRYER

# CARTER DAY PRINCIPLES OF AUDU DEWATERING 3200 3400 4000



The MICRO 2001 Dryer presents a unique concept in the art of drying compounded plastic pellets. The main design advantages for compound processing are the ability to tilt the dryer housing back to facilitate the cleaning of the rotor and screen cartridge between production runs and elimination of the lower bearing and seals to reduce maintenance.

The Carter Day Micro 2001 Dryer is designed to accommodate underwater, water ring and strand pelletizing systems, with a capacity range of 50 to 2,000 lbs/hr (20 to 900 kg/hr) and water rates up to 80 GPM (18m3/hr).

### MICRO 2001 DRIVE SYSTEM

The simple drive system requires minimal maintenance. A C-faced drive motor is quill-coupled directly to the rotor shaft which eliminates belts and couplings. The motor can be detached by removing the four mounting screws.



### MICRO 2001 SCREEN CARTRIDGE

The screen cartridge consists of a perforated screen rolled and welded to form a cylinder. This cartridge design has several advantages over "wrap-around" screen technology:

Removal and replacement is very simple since conventional latch mechanisms are no longer needed. A simple "twist" of the cartridge retainer releases the screen for easy removal, cleaning, or replacement.

With the absence of latch mechanisms, more screen open area is available for a given screen size. This means better drying performance.

The one piece cartridge virtually eliminates the possibility of incorrect screen installations which will eliminate product leakage and screen fatigue.

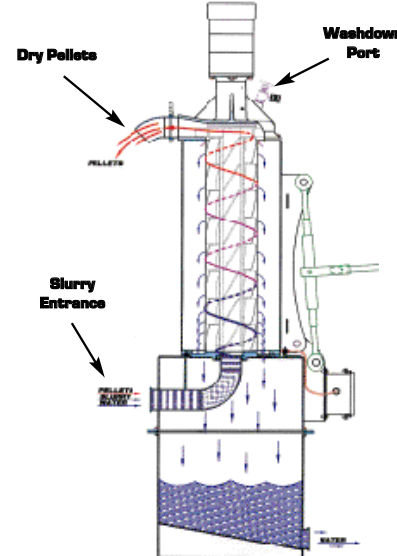


### MICRO 2001 PRODUCT FLOW DESIGN

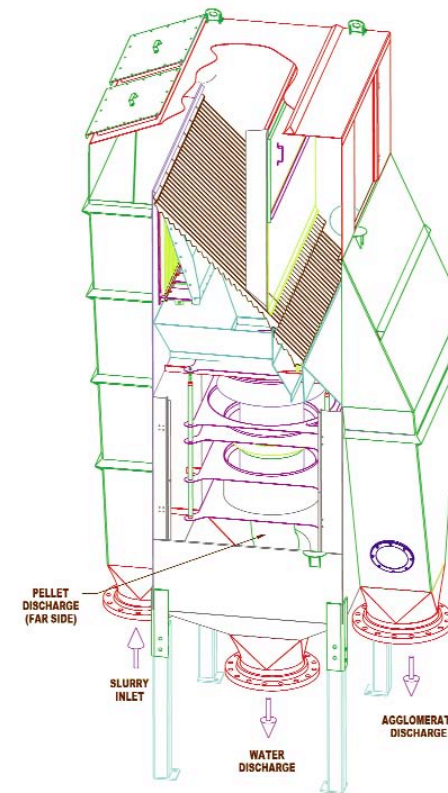
The product slurry enters the dryer at the bottom of the rotor. The slurry is pulled into the rotor and then radially discharged into the screen cartridge. Most of the water is removed at initial contact to the screen. The product is then lifted inside the cartridge and again outward to the screen. This radial processing continues the full length of the cartridge until the product is finally discharged at the top of the dryer substantially free of moisture. All of this happens in about 10 or 12 seconds from inlet to outlet.

Model	Capacity (1)				Motor Size		Weight	
	Pellet Rate From Pelletizer (1)	Water Rate To Dryer			HP	KW	lbs.	kg.
Micro 2001	2,000 900	80 18	2	1.5	425	192		

Note: 1. Indicated capacities presume a targeted surface moisture of 0.05% to 0.2% by weight, processing pellets 1/8" (3 mm) diameter x 1/8" (3 mm) long, and minimum pellet temperature of 60 degrees Celsius (140 degrees Fahrenheit). CONSULT FACTORY FOR CAPACITY RATINGS ON OTHER PRODUCT APPLICATIONS.



### Agglomerate Remover and Pellet Dewatering



### PELLET AND SLURRY FLOW OVER THE AGGLOMERATE GRID



### DEWATERING CONE DOOR ACCESS



### VERTICAL DEWATERING TOWER

The first step in the SPINAWAY drying system is the Carter Day AUDU Dewatering System which combines the unequalled agglomerate removal and originators of vertical dewatering capabilities. The AUDU is the industry-leading agglomerate and dewatering machine with capacities matched for our 32 and 50 series dryers.

Start-up conditions within extruders and pellet cutters can produce agglomerated chunks of pellets which, if greater than 1/2 inch (12.7 mm), may cause damage to internal dryer screens and rotor. The extra wide agglomerate grid offers more surface area for difficult products. After agglomerate removal the slurry flows through a highly efficient vertical dewatering tower before going to the dryer. This design has no moving parts therefore greatly simplifying maintenance and operation.



# CARTER DAY

## PRINCIPLES OF AUDU DEWATERING

### 3200 3400 4000

The capacity and design of our patented AU/DU 4000 agglomerate remover and dewatering unit minimizes the need for individual AU/DU units. The AU/DU 4000 provides you with bottom slurry feed and discharge connections minimizing pipe runs. The expanding slurry feed chamber reduces the slurry velocity, delivering it gently onto the large agglomerate removable grid system. This design eliminates the high velocity impact onto the screen, the associated jamming of agglomerates and splashing of hot water. The retained agglomerates flow freely to an unobstructed agglomerate chute.

**Reliable performance is assured with proven Carter Day design features of the AUDU:**

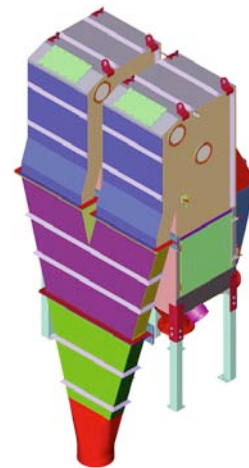
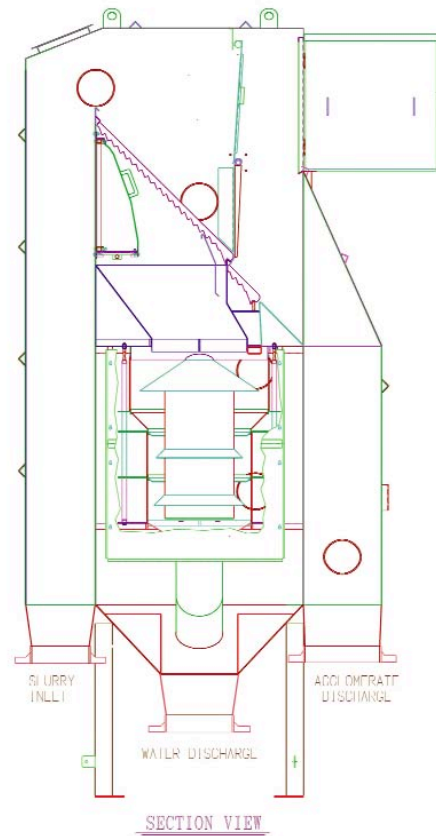
Reduces grid clogging, reduces splashing, and improves dewatering efficiency.

Low velocity feed from the expansion column avoids high velocity impact and helps eliminate clogging.

Wide agglomerate removal grid with easy access and no moving parts for simplified maintenance on our curtain design.

Photo Eye With Gate agglomerate discharge for trouble free operation.

High Capacity Patented Vertical Screen / Cone Dewatering



### PATENTED INLET SLURRY DIVIDER

Prior attempts to split an inlet slurry stream to ultimately deliver it to two separate dryers have failed - until now. Our Patented inlet slurry divider offers this using one slurry inlet.

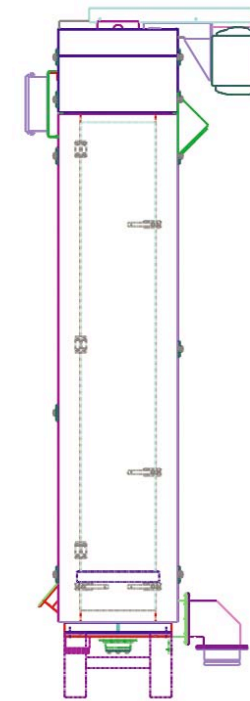
# CARTER DAY

## PRINCIPLES OF DRYING

### 12 SERIES

Carter Day has been manufacturing quality processing equipment for over 100 years. We continue this tradition with our line 12 Series Dryer Equipment for the Plastics Industry. The Stainless Steel SpinAway Dryer separates pelletized products from water slurries in a continuous operation. Products can be discharged from the SpinAway dry enough to go directly to packaging or storage with surface moisture as low as 0.05%.

The 12 Series Dryer is our smaller size dryer with many of the features of our large 32 and 50 Series Dryer Designs. The 12 Series dryers are capable of Polyolefin pellets drying in the range of 3000 lbs to 16,000 lbs per hour.



Dryer Rating for ENGINEERED RESINS												
304L Model	Capacity (1)		Water Rate To Dryer		Motor Size		Air Flow		Screen Area		Weight	
	Pellet Rate lbs/hr	Pellet Rate kg/hr	GPM	m <sup>3</sup> /hr	HP	KW	CFM	m <sup>3</sup> /hr	Sq. In.	m <sup>2</sup>	lbs.	kg
D-212	3,000	1,400	12-60	3-14	2	1.5	750	1,300	2,222	1.43	280	125
D-312	8,500	4,000	30-80	8-18	5	4.0	1,200	2,000	2,836	1.86	525	240
D-412	13,000	6,000	50-100	13-22	7.5	5.5	1,200	2,000	3,562	2.23	700	320
D-512	16,000	7,200	70-120	16-27	10	7.5	1,200	2,000	4,232	2.72	875	400

Note 1: Indicated capacities presume a targeted surface moisture of 0.05% to 0.2% by weight, processing pellets 1/8" (3 mm) diameter x 1/8" (3 mm) long, and minimum pellet temperature of 60 degrees Celsius (140 degrees Fahrenheit). CONSULT FACTORY FOR CAPACITY RATINGS ON OTHER PRODUCT APPLICATIONS.

# CARTER DAY

## 2800 AU & 2800 DU DEWATERING



The 2800 AUDU and SPINAWAY Dryer is the Carter Day Dewatering and Drying System which combines agglomerate removal, vertical dewatering and Spinaway Dryer. We typically use this AUDU system when rates are between 450 GPM to 3000GPM.

Just like our AUDU 3000/4000 system we separate pelletized products from water slurries in a continuous operation. Products can be discharged from the SpinAway Dryer dry enough to go directly to packaging or storage with surface moisture as low as 0.05%.

### 2800 AGGLOMERATE UNIT

Start-up conditions within extruders and pellet cutters can produce agglomerated chunks of pellets which, if greater than 1/2 inch (12.7 mm), may cause damage to internal dryer screens and rotor. The extra wide agglomerate grid offers more surface area for difficult products such as polypropylene.



Carter Day's exclusive DRAW BRIDGE GATE opens automatically or on demand to release agglomerate build up. The gate is open during start-up of underwater pelletizers and closed during normal operations to prevent the loss of pellets and water.

### 2800 DEWATERING UNIT

Carter Day Dewatering Units feature impact dewatering to provide higher dewatering rates. The cylindrical screen and baffle design removes 90% to 95% of the slurry water prior to entering the SpinAway dryer. With no moving parts they are virtually maintenance-free, leak-free and easy to access for cleaning.

All electric devices are pre-wired to local junction boxes, making for quick field installation and rapid start-up. Our standard brand of electronics and control devices meet most applications. We do our best to accommodate your brand of electronic devices

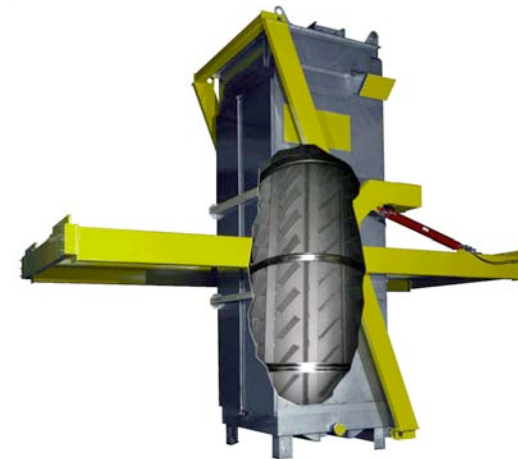


# CARTER DAY

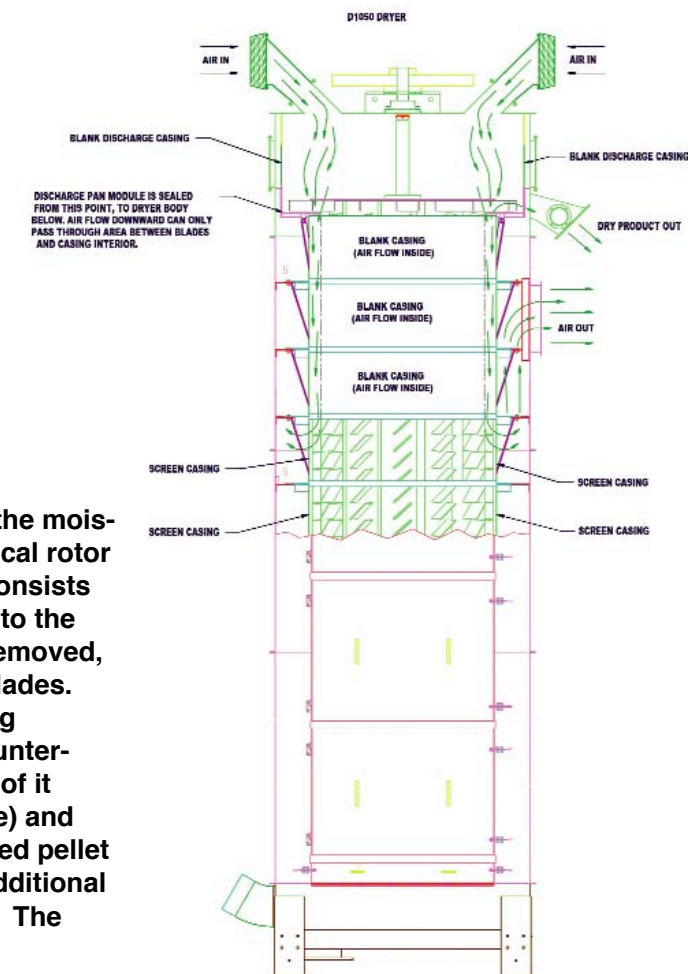
## PRINCIPLES OF DRYING 32 AND 50 SERIES

The second step in high capacity pellet drying is the 32 and 50 Series Spinaway Dryer. For more than five decades serving the polyolefin industry. Carter Day's SPINAWAY Centrifugal Dryers have a proven record of performance dating from the 1960's. We still service and support dryers built in that era. Carter Day's new 50 Series SPINAWAY Drying System delivers unsurpassed dewatering and drying efficiency for pelletized plastics. The D1050 can dry plastics pellets 72,000 kg/hr and beyond.

The Carter Day SPINAWAY Drying System protects against product contamination, reduces maintenance intervals, and maximizes dryer output. Longer service life, reduced downtime, large panel access doors, accessible top and bottom bearing assemblies isolated from hot, moist air streams, and industry exclusive modular housings all contribute to easier servicing and lower expenditures.



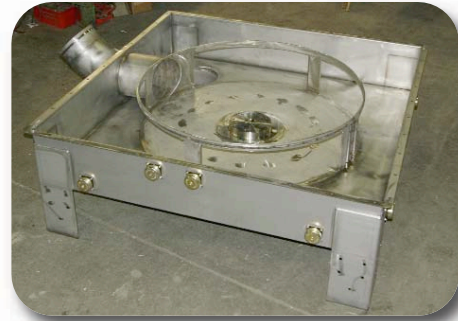
Final drying is accomplished by spinning off the moisture through the centrifugal action of the vertical rotor located in the center of the dryer. The rotor consists of impeller blades extending from the bottom to the top of the SPINAWAY Dryer. As the water is removed, pellets are carried to the top by the rotating blades. Our tubular solid rotor design and solid casing (screen) selection allows us to control the counter-current air flow through the pellets with none of it passing into the rotor (path of least resistance) and bypassing the pellets. This allows for improved pellet dryness. In this example we have provided additional solid casings to increase the air contact time. The product is then discharged at the top.



# CARTER DAY

## 50 SERIES DRYER FEATURES

**ALL WELDED CONSTRUCTION OF THE BOTTOM MODULE ALLOWING FOR EXCELLENT VERTICAL SUPPORT AND HOUSING FOR THE ROTOR BOTTOM BEARING**



**SCREEN ARRANGEMENTS AND STACKING MODULES FOUND IN THE 50 AND 32 SERIES.**



**ALL WELDED CONSTRUCTION OF THE TOP MODULE PELLET DISCHARGE MOUNTED ON THE BOTTOM PAN**

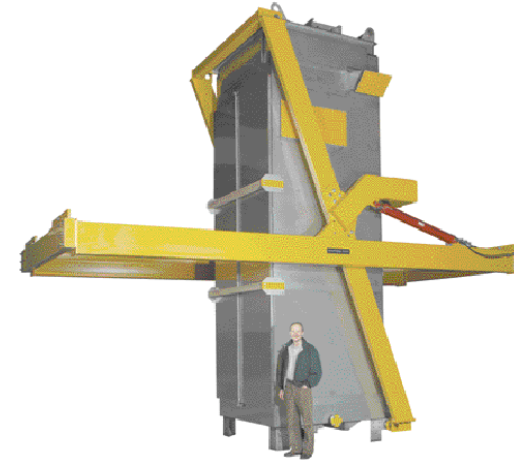
Model	Dryer Rating for POLYOLEFIN Plastic Pellets											
	Capacity (1)				Motor Size		Air Flow		Screen Area		Weight	
	Pellet Rate From Pelletizer	Water Rate To Dryer	HP	KW	CFM	m <sup>3</sup> /hr	Sq. In.	m <sup>2</sup>	lbs.	kg		
D-550	80,000	36,000	250	56	30	22.0	7,500	12,700	21,607	13.91	6,200	2,800
D-650	96,000	44,000	300	68	50	37.0	9,000	15,300	25,261	16.26	6,625	3,000
D-850	130,000	60,000	400	90	100	75.0	12,000	20,000	28,915	18.61	7,750	3,500
D-1050	160,000	72,000	500	114	100	75.0	15,000	24,700	32,569	20.96	8,900	4,000

Note 1: Indicated capacities presume a targeted surface moisture of 0.05% by weight, processing pellets 1/8" (3 mm) diameter x 1/8" (3 mm) long, smooth polyolefin pellets melt fracture of 4.0 to 10, without additives, and minimum pellet temperature of 60 degrees Celsius (140 degrees Fahrenheit). CONSULT FACTORY FOR CAPACITY RATINGS ON OTHER PRODUCT APPLICATIONS.

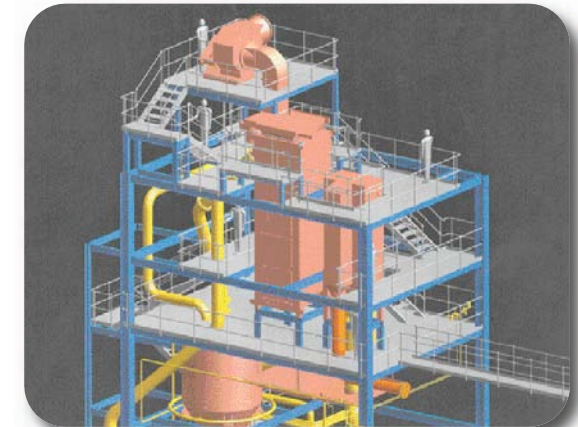
# CARTER DAY

## FEATURES AND ADVANTAGES

Carter Day uses a special assembly practice on our D850 and D1050 dryers allowing us to assemble the machines lying down. We then use our internally designed lifting carriage to vertically orientate the dryer for testing running prior to shipment.



Carter Day works with many engineering houses and extruder manufacturers to provide dewatering and drying systems.



CAD rendition courtesy of Simon Carves, LTD., UK

Carter Day has the ability to ship your dryer via truck for container loading or export packing anywhere in the world.



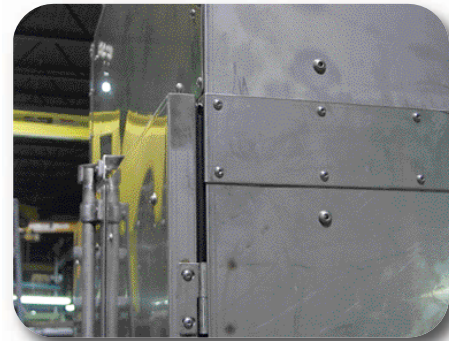
Complete laboratory service is at your disposal. **Carter Day's** facility enables us to test your unique product sample in a controlled laboratory environment to aid in determining the right model for your application. A free performance verification trial of your product assures that Carter Day's SPINAWAY dryers are your best solution prior to purchase. We invite you to participate in tests conducted at our facility in Minneapolis, Minnesota, USA.



# CARTER DAY

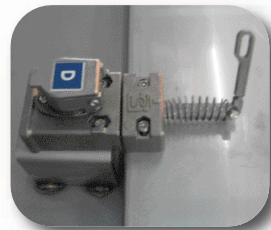
## 12/32/50 SERIES OPTIONS

Carter Day also offers sound package enclosures to meet your particular sound reduction needs.



Carter Day offers their product in many stainless types such as 304L or 316L. We also provide special finish grinding of the stainless steel if your application requires.

We also offer screen spray down systems for certain applications requiring fines cleaning from the screens.



Carter Days standard is to provide door locks or locking systems with each of our dryers.



The Carter Day Diverter Valve is used to purge the system during extruder start ups. The Diverter Valve is typically mounted directly to pellet outlet of the dryer and is constructed of stainless steel. The hinged gate is positioned by a pneumatic actuator and may be remotely activated.

All electric devices are pre-wired to local junction boxes, making for quick field installation and rapid start-up. Our standard brand of electronics and control devices meet most area classes zones. We do our best to accommodate your brand of electronic devices

# CARTER DAY

## 32 SERIES MODULAR DIFFERENCES



### 32 SERIES MODULAR DRYER DIFFERENCE:

Integrated scraper blades on rotor.

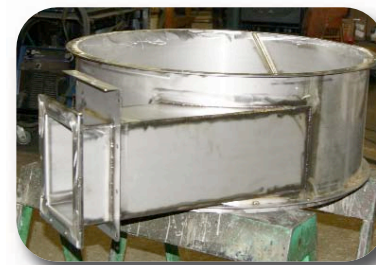
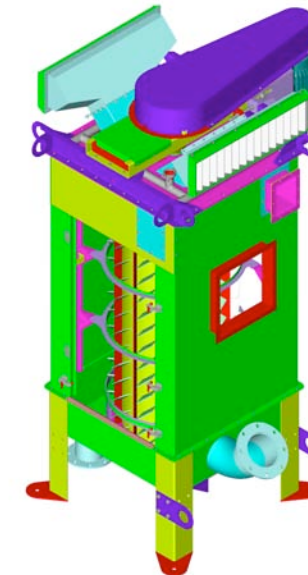
Hard-faced rotors include hard-faced scraper blades.

Low cost discharge pan is 100% removable / Replaceable.

Hoop ring supports have been redesigned to reduce "ledges" where fines can buildup.

Spray system utilizes Spiral-Jet nozzles for better screen & interior sidewall coverage with lower water supply requirements.

Bottom bearing, top bearing, screens and disruptor bars are all 100% interchangeable with existing D32 & D50 dryer product line.



### REPLACEABLE ALL WELDED CONSTRUCTION OF THE PELLET DISCHARGE SCROLL

Model	Capacity (1)		Water Rate		Motor Size		Air Flow		Screen Area		Weight	
	Pellet Rate From Pelletizer		To Dryer		HP	KW	CFM	m <sup>3</sup> /hr	Sq. In.	m <sup>2</sup>	lbs.	kg
	lbs/hr	kg/hr	GPM	m <sup>3</sup> /hr								
D-332	28,000	13,000	100	22	10	7.5	2,900	4,900	12,687	8.17	2,800	1,270
D-432	45,000	20,000	150	34	15	11.0	3,800	6,400	16,156	10.40	3,200	1,450
D-532	55,000	25,000	200	45	20	15.0	4,800	8,100	19,625	12.63	3,600	1,635

Note 1: Indicated capacities presume a targeted surface moisture of 0.05% by weight, processing pellets 1/8" (3 mm) diameter x 1/8" (3 mm) long, smooth polyolefin pellets (melt fracture of 4.0 to 10, without additives, and minimum pellet temperature of 90 degrees celsius (140 degrees Fahrenheit), CONSULT FACTORY FOR CAPACITY RATINGS ON OTHER PRODUCT APPLICATIONS.

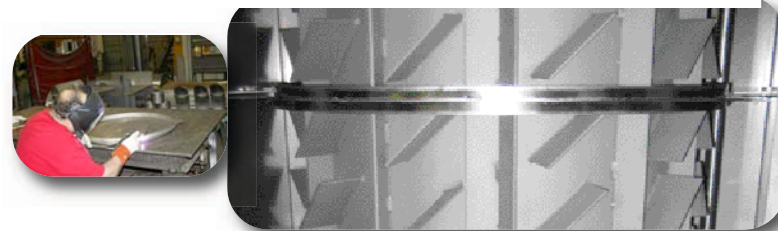
# CARTER DAY

## SPINAWAY DRYER ROTOR AND SCREEN DESIGNS

The SpinAway Dryer includes a totally enclosed pellet-free rotor with double-welded rotor blades with top and bottom stub shaft. This design adds strength and reduces maintenance and eliminates cross contamination of pellets and fines. The SpinAway rotor is dynamically balanced and can be shipped any place in the world and will not require rebalancing at the job site. For special applications we offer hard faced rotor blades to



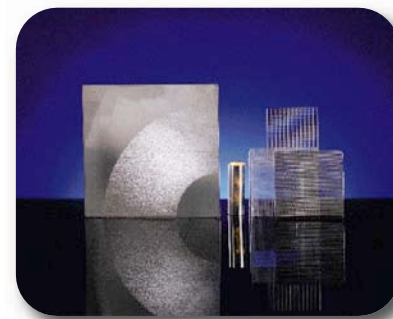
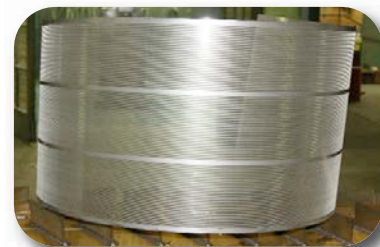
The SpinAway Screen ring design allows for proper and secure installation of segmented screens.



The Patented SpinAway Flow Disrupter Bar System nearly eliminates plastic pellet banding and stops motor load surging. The rugged Flow Disrupter Bars randomly distribute the product in the annular area between rotor and screen. This allows the maximum amount of thru put, and reduces fines generation. Rugged and absolutely tight screen closure for maximum performance.



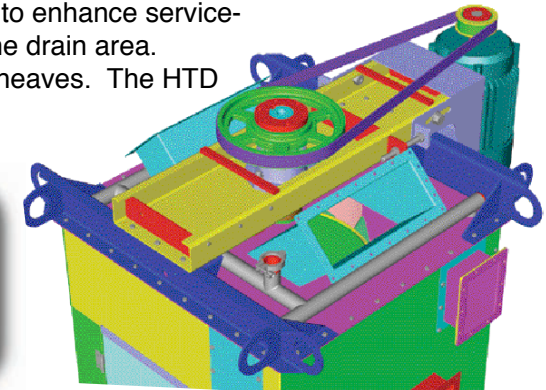
Carter Day offers a range of screens including Perforated Screen recommended for pelletized plastics and recycled plastics, Tri Bar Screen recommended for expandable polystyrene beads or small diameter pellets, and Laser Burned Screen recommended for expandable polystyrene beads and micro-sized pellets.



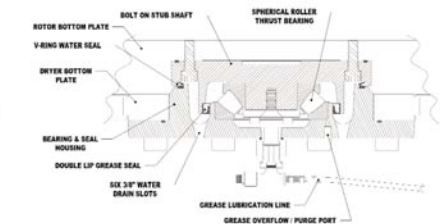
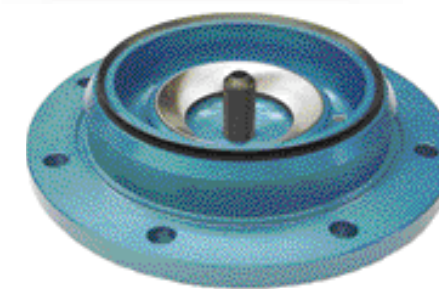
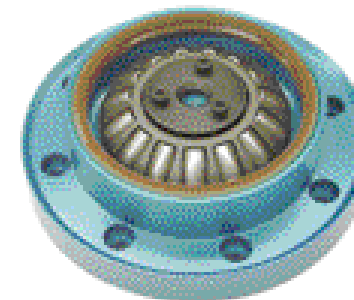
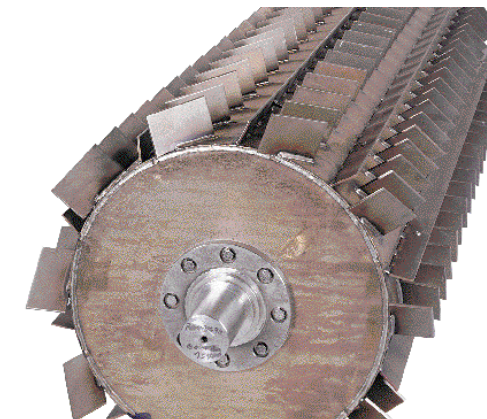
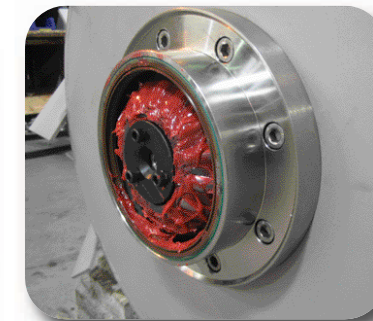
# CARTER DAY

## 32 AND 50 SERIES DRIVE PACKAGE

The 32/50 Dryer drive system is located on the top of the dryer to enhance serviceability and to protect the belt from water often encountered in the drain area. The drive consists of a motor, HTD belt and driver and driven sheaves. The HTD belt maintains constant rotor speed at all times.



Carter Day's drive design uses a no-thru shaft design, instead offering replaceable stub shafts for ease of maintenance. Bearings and shafts can be replaced with rotor assembled in dryer.



Our Patented thrust bearing design is isolated in a sealed cavity of the bolt on stub shaft assembly. Should the V-ring water seal fail water will be discharged through drain slots without coming in contact with the bearing.

This design provides the following operational benefits.

- Increased reliability
- Bearing and stub shaft can be exchanged with rotor in place