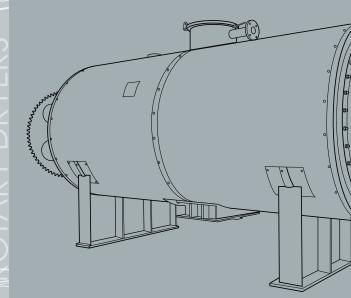


# VACUUM DRYING SYSTEMS

### Shelf, Rotary and Conical Dryers

**McGill** AirPressure LLC An enterprise of United McGill Corporation – Family owned and operated since 1951

a McGill AirPressure<sup>™</sup> product

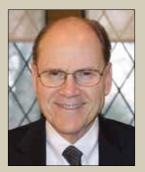


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#### **COMPANY HISTORY**

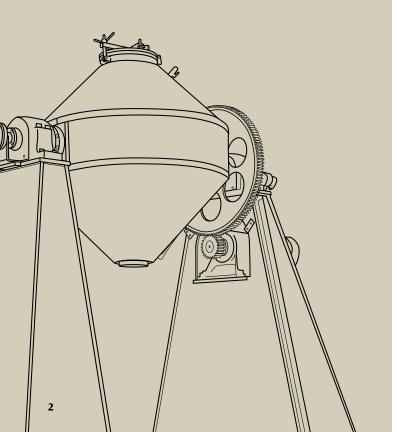
United McGill Corporation was founded in 1951 as United Sheet Metal and Engineering Company, in Columbus, Ohio. It was United Sheet Metal who purchased Biggs Boiler Works (founded in Akron, Ohio in 1887) in 1960; the company was then renamed the Biggs-United Division, and then later Biggs-United became McGill AirPressure LLC, a subsidiary of United McGill Corporation. After 25 years successfully designing and manufacturing a wide range of sizes and types of autoclaves and other pressure vessels, it was a logical business decision to include vacuum dryers in the McGill product offering. So, in 1986 McGill AirPressure acquired the technology of J.P. Devine, a well-respected and prominent manufacturer of vacuum dryers founded in 1904. Since then, we have followed its philosophy for success by constantly improving vacuum technology and maintaining high manufacturing standards.

"Since 1951, United McGill Corporation has been family owned and operated. We are an American manufacturer who continues to provide dependable, high quality



products for our customers. Our belief in quality, service, and customer satisfaction is why we are proud to market all our products under the McGill family name."

*James D. McGill, President* United McGill Corporation and Affiliated Companies



#### BENEFITS OF VACUUM DRYING

Vacuum drying is ideal for materials that would be damaged or changed if exposed to high temperatures. The vacuum removes moisture while preventing the oxidation or explosions that can occur when certain materials combine with air. Vacuum drying is also ideal in situations where a solvent must be recovered or where materials must be dried to very low levels of moisture.

Vacuum drying saves time. Unlike atmospheric drying, drying under reduced pressure lowers the boiling point and provides a greater temperature difference between the heating medium and product. This results in faster drying and more efficient heat recovery.

Vacuum drying saves money. Drying at lower temperatures reduces energy consumption. In addition, the dryers' closed-system design allows costly solvents to be recovered, eliminates expenses for additional air pollution control or exhaust systems, and minimizes product loss caused by atmospheric contaminants, dusting, oxidation, discoloration, and chemical change.

Vacuum drying protects workers as it helps comply with OSHA and EPA requirements. Since drying occurs in a closed system, hazardous materials and fumes are not released into the air. The potential for explosions is reduced because of the lower temperatures and the lack of dust and air in the dryer.

#### TYPES OF DRYERS

McGill AirPressure's vacuum dryers are indirect heated, batchtype dryers for heat-sensitive solids. They remove moisture by exposing the solids to reduced pressure. Just enough heat is used to replace that lost through vaporization. McGill AirPressure manufactures vacuum shelf, rotary, and conical dryers.

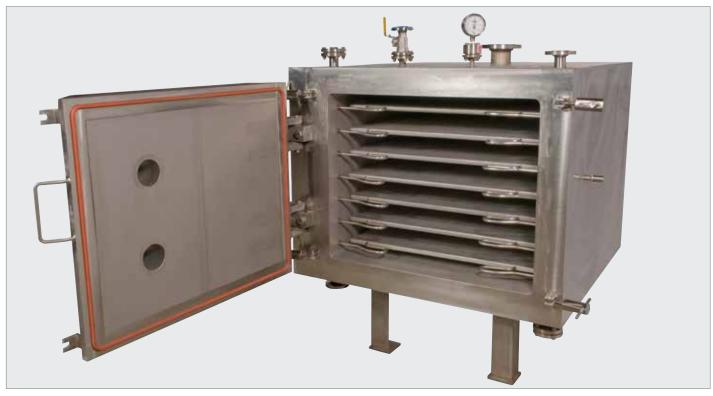
#### VACUUM SHELF DRYERS

McGill AirPressure vacuum shelf dryers are designed for drying materials that must not be agitated or that are processed in small batches. The material is loaded into pans or other containers, which are placed on heated shelves. The heating medium is usually steam or water, but oil or another high-temperature fluid can be used. McGill AirPressure offers more than 50 standard sizes of shelf dryers, with shelf areas from 2 to 1,000 square feet. We can also custom design and manufacture a shelf dryer to meet your size requirements. Standard units are rectangular with casings and shelves fabricated from carbon steel, stainless steel, or special alloys. Glass bead blasting and various types of polishing are options for finishing the casings and shelves. A variety of industrial coatings including Plasite<sup>\*</sup>, Teflon<sup>\*</sup>, and those from Heresite Protective Coatings can be applied to the dryer internals.

**Applications:** Drying pharmaceuticals, chemicals, plastics, food products, ceramics, and electrical and electronic components.



A vacuum shelf dryer designed with two independent chambers for drying two types of materials at the same time.



A vacuum shelf dryer with a 316 stainless steel polished finish for corrosion resistance.

#### Shelves

#### Each dryer shelf is constructed of a baffle and side closure bar sandwiched between two steel plates. The flat heating shelves allow maximum pan contact with minimum temperature variation. They are heated by an internally circulating fluid, with large headers allowing uniform flow through all shelves. Heating fluid connections between the headers and heating shelves provide vacuum-tight service and make the shelves easy to remove. They can be located at the front or rear of the shelves. Standard shelves are designed for 30, 50, or 100 psig internal pressures, coincidental with full vacuum in the drying chamber. Customized shelves can be built to the customer's specific pressure requirements. They can be fabricated to meet ASME code standards. Lightweight, embossed panel coils/heating shelves are available.

#### Doors

Dryer doors are reinforced to reduce deflection under vacuum pressure. A parabolic door gasket is set in a machined dovetail groove to provide a tight seal. Doors are equipped with heavy-duty hinges to withstand constant use. Hinges can be set on either the right or left side. Tempered sight glasses can be built into doors to allow operators to view the product as it is being dried.

#### Construction

Drying chambers are made of reinforced carbon steel for durability. To resist corrosion inside the drying chamber, internals can be fabricated of stainless steel, special alloys, or coated with baked phenolic resins. External surfaces can be painted or given a bead-blasted finish. External insulation sheathing is available in carbon steel or stainless steel and can be seam welded or joined with sheet metal screws. Sheathing is available with a commercial mill, polished, or painted finish.

#### McGill AirPressure Vacuum Shelf Dryers — Standard Specifications

Model Number*	Number of	Shelf Area	Shelf Spacing	Shelf Spacing W X D	Approxim	Approximate		
	Usable Shelves	(sq ft)	(inches)	(inches)	Н	W	D	— Weight (lb)
1A	2	2.25	3	12 x 13 ½	2	2	2	700
2B	2	9.50	6	29 x 23 ½	5	3 ½	3 1/2	1,850
2B	3	14.20	3 5%	29 x 23 ½	5	3 ½	3 ½	2,000
2B	4	18.90	2 ½	29 x 23 ½	5	3 1/2	3 ½	2,150
3B	5	23.70	5 3%	29 x 23 ½	5	3 1/2	3 1/2	2,850
3B	6	28.40	4 3/8	29 x 23 ½	5	3 ½	3 ½	3,000
3B	7	33.10	3 1/2	29 x 23 ½	5	3 1/2	3 1/2	3,100
4C	6	36.00	5	24 x 36	5 ½	3 1/2	3 1/2	3,500
4C	7	42.00	4	24 x 36	5 ½	3 ½	3 1/2	3,700
4C	8	48.00	3 1/2	24 x 36	5 1/2	3 1/2	3 1/2	3,850
5D	3	34.70	5	39 ½ x 42 ½	5	5	5 ½	3,600
5D	4	46.30	3 ½	39 ½ x 42 ½	5	5	5 ½	3,900
5D	5	57.90	2 1/2	39 ½ x 42 ½	5	5	5 ½	4,150
6D	6	69.50	3 5%	39 ½ x 42 ½	5	5	5 ½	4,800
6D	7	81.00	3	39 ½ x 42 ½	5	5	5 ½	5,100
6D	8	92.60	2 1/2	39 ½ x 42 ½	5	5	5 1/2	5,350
7D	9	104.20	4 3%	39 ½ x 42 ½	6 1/2	5	5 ½	6,850
7D	10	115.80	3 7/8	39 ½ x 42 ½	6 ½	5	5 1/2	7,150
7D	11	127.40	3 ½	39 ½ x 42 ½	6 ½	5	5 1/2	7,450
7D	12	139.00	3	39 ½ x 42 ½	6 ½	5	5 1/2	7,700
7D	13	150.60	2 3/4	39 ½ x 42 ½	6 1/2	5	5 1/2	8,000
8D	12	139.00	4 3/8	39 ½ x 42 ½	8	5	5 1/2	8,600
8D	14	162.10	3 ½	39 ½ x 42 ½	8	5	5 ½	9,200
8D 9E	<u>16</u> 9	185.30	3 4	39 ½ x 42 ½	8 5 ½	5	5 ½	9,750
9E 9E	9 11	110.00 134.40	4 3	44 x 40 44 x 40	5 ½ 5 ½	5 ½ 5 ½	6 6	7,150
9E 9E	11	154.40	3 2 ½	44 x 40 44 x 40	5 1/2 5 1/2	5 ½	6	7,800 8,400
9E 9E	15	183.00	2 72	44 x 40 44 x 40	5 1/2 5 1/2	5 ½	6	8,400 9,000
10E	15	220.00	2 5%	44 x 40	8 1/2	5 1/2	6	10,850
10E	20	244.40	2 1/4	44 x 40	8 1/2	5 1/2	6	11,500
10E	20	268.80	2 /4	44 x 40	8 1/2	5 1/2	6	12,100
10E	12	192.30	4 3%	59 x 39 <sup>1</sup> / <sub>8</sub>	8	6 1/2	5	10,950
11F	14	224.40	3 1/2	59 x 39 <sup>1</sup> / <sub>8</sub>	8	6 1/2	5	11,750
11F	16	256.40	3	59 x 39 ½	8	6 1/2	5	12,550
11F	19	304.50	2 3/8	59 x 39 <sup>1</sup> / <sub>8</sub>	8	6 1/2	5	13,700
11G	9	290.30	4 3%	59 x 78 <sup>3</sup> / <sub>4</sub>	7	6 1/2	9	16,750
12G	10	322.60	3 78	59 x 78 <sup>3</sup> / <sub>4</sub>	7	6 1/2	9	17,500
12G	12	387.10	3	59 x 78 <sup>3</sup> ⁄ <sub>4</sub>	7	6 1/2	9	19,050
12G	14	451.70	2 1/2	59 x 78 ¾	7	6 1/2	9	20,500
13G	12	387.10	4 3/8	59 x 78 <sup>3</sup> ⁄ <sub>4</sub>	8	6 1/2	9	20,600
13G	14	451.70	3 1/2	59 x 78 <sup>3</sup> ⁄ <sub>4</sub>	8	6 1/2	9	22,150
13G	16	516.20	3	59 x 78 ¾	8	6 1/2	9	23,700
13G	19	613.00	2 3/8	59 x 78 ¾	8	6 1/2	9	26,600
*Larger sizes are a	vailable upon request.	Note: Horizontal line	es indicate change in inte	ernal cabinet dimensions.				



A skid-mounted shelf dryer complete with vacuum system, hot water circulation system, and controls is piped and wired for easy installation.



Shelf dryers can be constructed of a variety of materials with sight glasses built into the doors.



Clean-in-place nozzles.

#### **Auxiliary Equipment Options**

- Vacuum gauge, vacuum release valve, thermometer, or pressure gauge
- Vertical shell and tube surface condensers
- Refrigerated or dry-ice traps
- Vacuum pumping systems: mechanical, water-sealed, or steam jet
- Heating systems: steam, water, oil, or other fluid
- Cooling systems: direct or indirect
- Clean-in-place (CIP) nozzles
- Extra connections
- Special casing or shelf arrangements
- Product pans (trays) fabricated of carbon steel, stainless steel, and other alloys
- Instrumentation for process control and documentation: fully wired control panels or fieldmounted individual instruments for sensing, indicating, or recording temperature, pressure, and other variables
- Complete systems with components assembled on a common baseplate



#### VACUUM ROTARY DRYERS

Vacuum rotary dryers are used in applications involving difficult or sticky materials that can withstand agitation. The jacketed shell is horizontal and cylindrical in shape. A double flight of spiral ribbons or heavy-duty paddles is attached to a rotating shaft inside the dryer. During operation, the ribbons or paddles move material from the center of the dryer to the end plates and back so that the batch is constantly exposed to the heated shell and shaft. This action also allows for ready discharge. The shell and shaft are heated by steam, water, oil, or another high-temperature fluid. Standard working volumes range from 2 to 300 cubic feet. Rotary dryers are fabricated from carbon steel, stainless steel, or special alloys.

**Applications:** Drying pharmaceuticals, chemicals, food products, filter cakes, pastes, slurries, and heavy, sticky products.

#### **Material Handling**

Material is loaded into the drying chamber by means of a charge nozzle with a spring-assisted, hinged cover. The discharge valve can be designed for hand wheel, air, or hydraulic operation. Parabolic charge and discharge gaskets are set in a machined dovetail groove. Large-diameter, flanged vacuum connections prevent atmospheric contamination and allow optimum conductance. Clean-out ports can be built into the dryer's end plates.

#### Operation

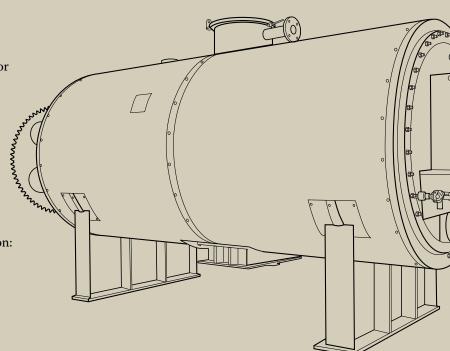
Dryers are designed for standard operating pressures up to 10 torr. Constant speed and variable speed drives are available in chain-and-sprocket, gear-and-pinion, or direct-drive designs with guards, fan-cooled enclosures, and torque couplings. Dryers can be equipped with self-aligning, anti-friction, pillow block-type bearings and special motor enclosures. During operation, the material being dried is mixed by a heated spiral ribbon or paddle agitator. Each agitator is durably constructed with the spiral inner and outer ribbons or paddles welded to support arms on the center shaft. For models RD-2040 and larger, the agitator shaft is heated by a rotary union and siphon pipe. The agitator shaft is sealed by stuffing box assemblies. For operating pressures below 10 torr, the shaft can be equipped with double mechanical seals.

#### Construction

Rotary dryers are available with all vapor-contacting parts made of carbon steel, stainless steel, or special alloys. Internal shell and external agitator welds are ground smooth and flush. External surfaces are painted; interior surfaces can be polished. The dryer's jacket can be designed and stamped in accordance with ASME code for 25, 50, or 100 psig, coincidental with full vacuum in shell. The jacket is baffled for equal distribution of liquid heating mediums. External insulation and sheathing can be seam welded and polished or joined with sheet metal screws. Rotary dryers are equipped with a vacuum gauge, vacuum release valve, jacket pressure gauge, and jacket relief valve. A product thermocouple well is available. Standard saddle supports allow 18 inches of clearance from discharge valve face to floor. Special supports are available. Each rotary dryer is fully assembled and vacuum leak tested at McGill AirPressure's manufacturing plant.

#### **Auxiliary Equipment Options**

- Vertical shell and tube surface condensers
- Refrigerated or dry-ice traps
- Vacuum pumping systems: mechanical, water-sealed, or steam jet
- · Heating systems: steam, water, oil, or other fluid
- Cooling systems: direct or indirect
- Bag-type vacuum dust collectors with controls for intermittent shaking or pulsing of material back into the dryer
- Dust-tight discharge hoppers and valves for filling containers
- Flush-type clean-out ports in end plates
- Instrumentation for process control and documentation: fully wired control panels or field-mounted individual instruments for sensing, indicating, or recording temperature, pressure, and other variables
- Complete systems with components assembled on a common baseplate.





A stainless steel rotary dryer for a chemical processing application. Internal ribbon agitators (inset) help dry materials evenly.

#### McGill AirPressure Vacuum Rotary Dryers — Standard Specifications

Model	Internal	Working Capacity	Diameter Discharge	Diameter Charge	Typical Ribbon	Typical	Approximat	Approximate			
Number*	Dimensions (ID x Length)	60% Full (cu ft)	Opening (inches)	Opening (inches)	Speed* (rpm)	Motor Horsepower*	Height	Width	Length	Weight (lb)	
VRD-1520	18" x 2'0"	2.3	4	6	25	1	4'2″	2'6″	6'0″	1,500	
VRD-1740	20" x 4'0"	5	4	6	20	1	4'4"	2'9″	9'0″	2,700	
VRD-2040	2'0" x 4'0"	7	6	10	20	1	4'6"	3′0″	9'0″	3,100	
VRD-2060	2'0" x 4'0"	11	6	10	20	1 ½	4'6"	3'0″	11'0"	3,500	
VRD-2080	2'0" x 8'0"	14	6	10	20	2	4'6"	3'0″	13'0"	3,700	
VRD-2560	2'6" x 6'0"	17	8	10	20	3	5'0"	3′6″	11'0"	4,500	
VRD-2580	2'6" x 8'0"	23	8	10	15	5	5'0"	3′6″	13'0"	5,700	
VRD-25100	2'6" x 10'0"	29	8	10	15	5	5'0"	3′6″	15'0"	6,900	
VRD-3060	3′0″ x 6′0″	24	8	12	15	5	5'6″	4'0"	11'0"	5,500	
VRD-3080	3'0" x 8'0"	32	8	12	15	5	5'6″	4'0"	13'0"	6,700	
VRD-30100	3'0" x 10'0"	39	8	12	15	7 1/2	5'6″	4'0"	15'0"	7,900	
VRD-30120	3'0" x 12'0"	44	10	12	15	7 1/2	5'6″	4'0"	18'0"	9,100	
VRD-30150	3'0" x 15'0"	55	10	12	15	10	5'6″	4'0"	21'0"	10,800	
VRD-4080	4'0" x 8'0"	57	10	16	10	7 ½	6'6″	5'0″	13'0"	10,100	
VRD-40100	4'0" x 10'0"	70	10	16	10	7 1/2	6'6″	5'0"	15'0"	11,500	
VRD-40120	4'0" x 12'0"	84	10	16	10	7 ½	6'6″	5'0″	18'0"	14,100	
VRD-40150	4'0" x 15'0"	100	12	16	10	15	6'6″	5'0"	21'0"	17,800	
VRD-40200	4'0" x 20'0"	130	12	16	10	15	6'6″	5'0″	26'0"	24,000	
VRD-50100	5′0″ x 10′0″	111	12	16	7	15	7′6″	6'0″	16'0"	20,000	
VRD-50150	5'0" x 15'0"	161	12	16	7	20	7′6″	6'0″	21'0"	25,500	
VRD-50200	5'0" x 20'0"	209	12	16	5	20	7′6″	6'0″	26'0"	32,000	
VRD-50250	5′0″ x 25′0″	262	12	16	5	25	7′6″	6'0″	31'0″	40,000	
*Based on produ	ct bulk density of 50 ll	b/cu ft.	Special sizes also a	available.							

#### VACUUM CONICAL DRYERS

Vacuum conical dryers are designed to dry free flowing materials for which attrition or size reduction can be a problem. A conical dryer contains no agitator to damage sensitive materials. Instead, the dryer's cones rotate end over end to create a gentle folding and mixing action. The shell is heated by steam, water, oil, or another high-temperature fluid. Even distribution of the heating medium is facilitated by baffles in the jacket. Standard working volumes range from 1 to 348 cubic feet. Other custom sizes are available on request. Vapor-contacting parts are fabricated from carbon steel, stainless steel, or special alloys.

**Applications:** Drying fine chemicals, food products, pharmaceuticals, powders, powdered metals, fibers, and plastics.

#### **Material Handling**

Material is loaded into the drying chamber through a charge valve with a spring-assisted, hinged cover. The standard discharge valve is a hand wheel-operated, butterfly valve design with Teflon seats and seals and a stainless steel disc. Options include an air-operated discharge valve and unloading boot.

#### Operation

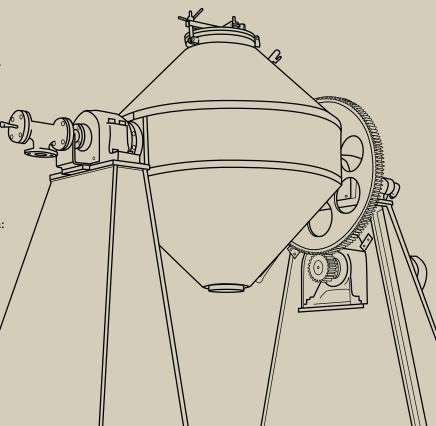
The standard operating pressure is one torr. Constant speed and variable speed drives are available in chain-and-sprocket, gear-and-pinion, or direct drive designs with guards. Stuffing box and single mechanical seals are available, with an internal lip type shaft seal on the vacuum line. A double mechanical seal can be used on the vacuum line for operation to 50 microns. Dryers are equipped with self-aligning, antifriction bearings on both trunnions. An oversized rotary joint and jacket connections for the liquid heating medium are available. An internal thermocouple can be supplied for measuring product temperature.

#### Construction

Conical dryers are available with all vapor-contacting parts made of carbon steel, stainless steel, or special alloys. Internal welds are ground smooth, and internal surfaces can be finished with a 30-50 micro-inch polish. External surfaces can be painted or insulated with a polished stainless steel cover. The dryer jacket is designed and stamped in accordance with ASME code for 25, 50, or 100 psig, coincidental with full vacuum in dryer. The jacket is baffled for equal distribution of the liquid heating medium. Special bronze bearings provide internal support of the vacuum line, which is equipped with an intake filter formed of multiple layers of stainless steel mesh (special vacuum line filters are available). Conical dryers are equipped with a vacuum gauge, vacuum release valve, jacket pressure gauge, and jacket relief valve. A bronze double rotary joint is provided for steam and condensate connections. Floor stands and stub stands are available.

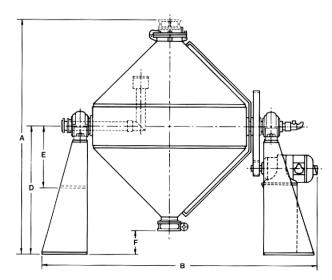
#### **Auxiliary Equipment Options**

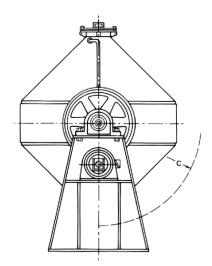
- Vertical shell and tube surface condensers
- Refrigerated or dry-ice traps
- Vacuum pumping systems: mechanical, water-sealed, or steam jet
- · Heating systems: steam, water, oil, or other fluid
- Cooling systems: direct or indirect
- Bag-type vacuum dust collectors with controls for intermittent shaking or pulsing of material back into the dryer
- Dust-tight discharge hoppers and valves for filling containers
- Instrumentation for process control and documentation: fully wired control panels or field-mounted individual instruments for sensing, indicating, or recording temperature, pressure, and other variables
- Complete systems with components assembled on a common baseplate.





A vacuum conical dryer designed for processing powdered metals.





McGill AirPressure Vacuum Conical Dryers — Standard Specifications

Model Number	Working Capacity 70% Full (cu ft)	Diameter of Charge Opening (inches)	Diameter Discharge Opening (inches)	Dryer Revolutions per Minute	Motor Horse- power	Maximum Apparent Density (lb/cu ft)	Vacuum Line Size (inches)	Approximate Floor Space	Overall Height A (inches)	Overall Length B (inches)	Swing Radius C (inches)	Floor Stands D (inches)	Stub Stands E (inches)	Valve Clearance F (inches)
VCD-15	1.1	6 Comb	oination	12	1⁄4	150	1	2'6" x 4'0"	46	62%	14	32	_	18
VCD-20	2.9	6 Comb	ination	11	1⁄4	150	1½	3'0" x 5'6"	56	76¾	19	37	_	18
VCD-25	5.1	8	6	10	1/3	100	$1\frac{1}{2}$	3′9″ x 6′0″	61%	83%	23¾	381/8	_	18
VCD-30	8.6	8	6	9	1/2	100	2	4′6″ X 7′0″	70%	91%	28¼	42%	_	18
VCD-35	14.3	16	8	8.5	3⁄4	90	2	5′0″ x 7′6″	82¼	98%	35¼	47	_	18
VCD-40	20.3	16	8	8	1	75	3	5'6" x 8'0"	88¼	103¼	38¼	50	_	18
VCD-45	29.0	16	8	7.5	1½	75	3	6'0" x 9'0"	96	118%	42¼	53¾	_	18
VCD-50	39.8	16	10	7	2	70	3	6'6" x 10'0"	102¼	125¼	45¼	57	_	18
VCD-60	72.2	16	10	6.5	3	55	3½	7′9″ x 11′6″	_	139%	53¾	_	18	_
VCD-70	109.9	16	10	6	5	50	3½	9′0″ x 12′6″	—	147%	60¼	—	18	—
VCD-80	163.9	16	10	5.5	7½	50	6	10'9" x 13'6"	_	1661/8	67¾	_	36	_
VCD-90	233.3	18	12	4.5	10	50	6	14'0" x 18'0"	—	183%	74¾	_	36	—
VCD-105	347.9	18	12	3.75	15	50	6	16'0" x 22'0"	_	204¼	83¾		36	_

#### VACUUM-PRODUCING EQUIPMENT

Choices include liquid-ring vacuum pumps, oil-sealed rotary piston vacuum pumps, mechanical booster vacuum pumping systems, and liquid jet vacuum pumps. Air ejectors, refrigerated traps, and filters can be provided if required by a customer's application.

#### Condensers

Condensers are necessary when large volumes of condensable vapors are to be removed or when solvent recovery is desired. Their use can reduce the size of the pump needed. McGill AirPressure builds its vertical surface condensers with surface areas from 10 to 1,000 square feet. They can be equipped with bypass valving arrangements so condensate can drain without releasing the system's vacuum. Condenser, vacuum system, and controls can be prepiped and installed on a common baseplate.

#### **Heating and Cooling**

Circulating heating and cooling systems are supplied when needed. Heating mediums include steam, water, oil, and other fluids. Cooling is done directly when the heating medium is water or steam, and indirectly in most other cases.

#### Controls

Manual, remote, or automatic controls are used, including microprocessor and computer controls. Recording capabilities can be provided.

#### **Complete Systems**

We can supply "equipment only" but prefer to handle the engineering and manufacturing of the complete vacuum drying system. We have built many turnkey systems in which all equipment, components, and controls were provided. Such systems offer the advantages of a coordinated design, singlesource responsibility, known cost in advance, and trouble-free installation and startup. With our extensive experience in field construction, we can install the system or supervise the



McGill AirPressure can supply vacuum dryers with auxiliary equipment such as condensers.

work of others. Our technicians are available to inspect your vacuum drying system and help keep it operating efficiently.

#### **Solving Your Drying Problems**

We believe it is mutually beneficial when we are called in early to discuss a problem and work with you to develop the most efficient and economical solution. This includes providing objective, expert advice about the type and size of dryer that would be best for each application. This is done without obligation. We do all engineering, manufacturing, assembly, and testing at our facility in Columbus, Ohio. In our experience, the best way to determine the feasibility of vacuum drying a product is by performing a test program. Our pilot-sized shelf, rotary, and conical dryers with auxiliaries are available for test programs run at our facility. We can help the customer design a test program or perform a test program provided to us by the customer. When available, our pilot dryers can be rented for testing at the customer's facility



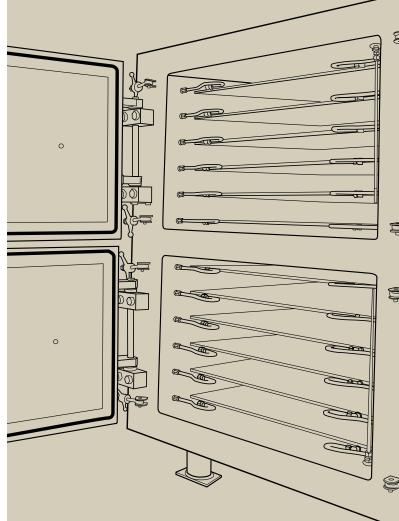
Pilot-sized vacuum dryers can be used to determine what type and size dryer is right for your applications.

Products depicted in this brochure were current at the time of publication. As a quality-conscious manufacturer, McGill AirPressure is continually seeking ways to improve its products to better serve its customers. Therefore, all designs, specifications, and product features are subject to change without notice

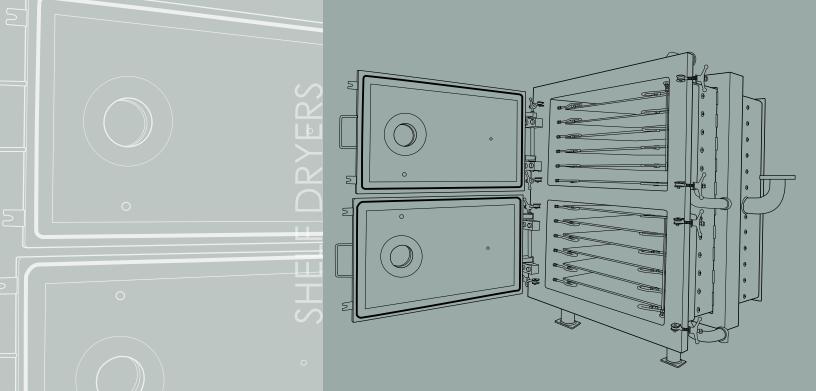
United McGill  $\mbox{``and McGill}$  Air Pressure  $\mbox{``are trademarks of United McGill Corporation.}$ 

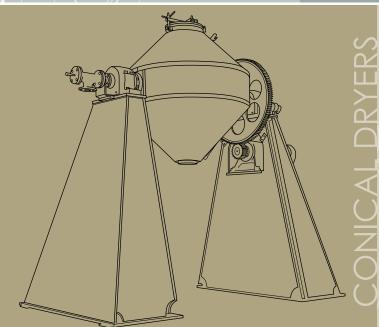
Teflon\* is a registered trademark of E. I. du Pont de Nemours and Company.

Plasite<sup>®</sup> is a registered trademark of the Carboline Company.



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## McGill AirPressure LLC

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