

Press-Side vs. Central Drying



Drying Done Right

How To Select whether Press-Side or Central Drying Works Best for Your Processing Location.

There are, of course, reasons why press-side dryers may be best for some processors but more and more are converting to central systems because their production requirements have changed over the years. Once they make that change, they will never go back because the economic advantages of a central system are very favorable to most processors profit margins.

Let's examine:

- Reasons for maintaining a press-side arrangement
- Reasons for considering a Central Drying System
- Economic benefits of a Central Drying System

Press-side or press-mounted dryers are commonplace where processors have fewer than 10 process machines and have low throughputs on those machines (under 25 lb./hr.). It also helps if the processor is running the same material on the same machine day-after-day, making very few material changes. This requires that there be a vacuum loader at each machine and a source of material (usually a bulk box or drum of resin). Processors learn to live with fork lifts delivering material to the presses. Note that if access is ever required to the machine throat, the dryer and loader have to be removed, then re-mounted. Still, this arrangement seems to work for this group of processors.

The interim move to a Central System for most processors is to introduce multiple portable dry/convey units. These dryers are usually mounted on a cart with a drying hopper, a loader or receiver to supply resin to the drying hopper and a machine-mount loader or receiver to deliver material to the machine throat. The throughputs range up to about 400 lb./hr. The bulk boxes and forklifts are still present – clogging up the production area. If multiple material changes are required, processors often have extra dry/convey units in an area off the production floor that



Small press – mounted dryer for medical application



Portable Dry/Convey Model



Dryer Mounted Above Press

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can be wheeled into place beside the process machine. This adds to the confusion on the production floor and the whole process often results in material being left in the bulk bins and or contaminated and simply wasted.

Yet another scenario occurs when a processor needs higher throughputs than 400 lb./hr. and larger stationary dryers are introduced to the production floor – taking up even more floor space. Or, worse yet, they will be mounted on racks above process machines. In these cases, routine maintenance will probably not be performed – ultimately resulting in excessive rejected parts and higher energy bills.

It should be noted that even when you are drying the same material in different dryers (even of the same model) you may experience variation in the levels of drying. Differences in the age of the desiccant, heaters, blowers or even condition of the filters may cause this.

What Is Central Drying?

Central Drying allows one dryer to provide -40°dew point air to multiple material hoppers of different sizes. An adjustable heater and blower are mounted on each hopper so the heat and air flow can be adjusted to the material in that hopper. So you have custom drying of multiple materials from a single central dryer. That is sized to match the requirements of that bank of hoppers. Central Dryers are available with throughputs from <200 lb./hr. through 5,000 lb./hr. so a wide range of processor needs can be easily met. Processors often have more than one central dryer – each serving a bank of hoppers with a back-up central dryer for times when a dryer may be taken offline for maintenance.

You Are A Good Candidate for Central Drying/Conveying If...

- You have dryers on 10 or more machines
- You have a single material that requires drying at multiple machines
- You have frequent material changes on your machines
- You use more material types than you have machines
- You have dryer to dryer quality issues when drying the same material
- You want to expand, but do not have sufficient space
- You need flexibility to serve the needs of your customers
- You have a Just-in-Time objective to reduce inventory
- You need to reduce operating costs
- You want to improve safety for your workers

What are the Benefits Of Central Drying?

We will discuss specific savings but here is an overview of benefits:

- Space savings
- Fewer materials handlers
- Energy savings (Rebates often available)
- Increased machine uptime (no waiting for material to pre-dry)



Compact Drying, Blending and Conveying area

- Material control reduces waste (small inventory to clean)
- Improved product quality (drying consistency through your plant)
- Fast payback of investment (because there are multiple sources for savings)

Let's talk about space!

Press-side dryers require about 75 sq.ft. per process machine for a dryer, hopper and a bulk box. Add the space a fork lift needs to move bulk boxes to and from the process machine and you are up to about 120 sq. ft.! Multiply that by the number of presses you have to see how many additional presses you can add – so you can increase your manufacturing area – where profits are made.



Unclog your production floor

NOTE: These figures were not picked out of the air! They are based on typical results of before and after plant surveys of processors who moved from press-side drying to a Central Drying/Conveying System.

Based on 12 machines – Average throughput 200 pph - Drying Nylon/ABS/PC		
Example:	Press-Side Cost/Year	Central Dry/Convey Cost/Year
Energy Costs:		
Press-Side—\$.10/kwh x 11 kw x 8,000 hr./yr. x 12 dryers	\$108,000	
Central—\$ 10.kwh x 51 kw x 8,000 hr./yr. x 1 dryer =		\$41,000
Material Changes: Press-side dryers require 30 minutes to 4 or 5 hours for material changeover. :		
Press Side—Based on 2 hr. average x 3 changes/machine/week x \$50/hr.	\$180,000	
Central—Based on .25 hr. average x 3 changes/machine/week x \$50/hr.		\$22,500
Labor:		
Central Conveying typically eliminates at least one material handler/12 machines.	\$ 30,000	
		\$0.00
	\$318,000/yr.	\$63,500/yr.
Central Drying/Conveying Savings: \$254,500 /Year – EVERY YEAR!		
24 Machine plant: \$509,000 Savings/Year! • 36 Machine plant: \$763,000 Savings/Year!		

Additional Savings Not Calculated:

- Maintenance on 12 dryers vs. 1 Central Dryer
- Brush changes & filter cleaning for 12 loaders vs. just filter cleaning for 12 vacuum receivers
- Energy usage for 12 dryers and 12 loaders vs. 1 dryer and 1 vacuum pump
- Loss of material due to bulk box movement, material contamination and poorly made parts

Central Conveying – Adds Benefits to Central Drying!

Reduced Material Costs - Central conveying may allow you the option of buying materials in bulk for silo storage with a “free” silo from your material supplier or you may be able to increase your purchases to a point where it is advantageous to use bulk bins for storage instead of those pesky bulk boxes. But, even if you have to continue with bulk boxes, for some reason, they can at least be stored in a designated area where one person is responsible for ensuring that the material remaining in the liners is emptied into the new container and they are properly covered to prevent contamination.

Quick and Correct Material Changes – Central conveying is the reason that material changes can be reduced to about 15 minutes and with Auto ID validation of materials, you can be sure that the right material will always go to the correct machine.

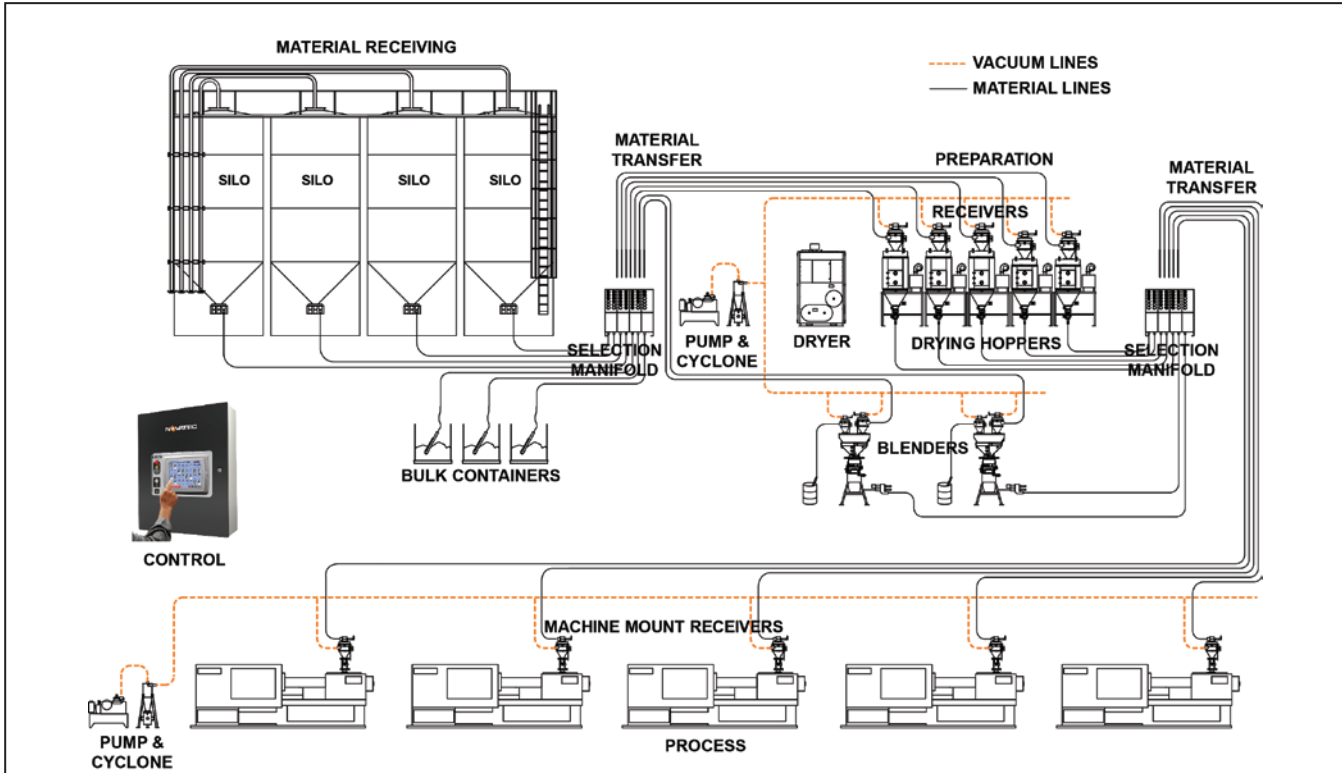
Safety – Reduced material spillage means safer conditions on the production floor.

A Central Drying/Conveying System can pull materials from a combination of silos, bulk bins and bulk boxes to drying hoppers, or blenders or a combination of those.



Auto ID validation eliminates molding the wrong material

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Central Drying/Conveying improves process flow and reduces costs.



Bulk Purchases reduce resin costs

Need Help Making a Decision About Converting to a Central System?

Ask for a plant survey to determine whether, and how much, you can save on energy costs, wasted materials, reduced rejects, labor, maintenance and increased up-time. The usual payback time is 12-18 months so the sooner you act, the sooner you start saving.