

Conditioned drying in drying rooms

In areas with a high humidity level, drying with outside air is very limited. The drying process of seed with crop ('on straw') proceeds slowly and demands a lot of energy. Closed cells with a cooling-drying installation (heat pump) provide a solution and save a lot of energy. The cells are built around the drying installation.



Depending on the needs and use, the lay-out and measurements of the cells are determined: 1 or more row of boxes per cell or 1 large cell with drying on 2 sides, 3-4-5-6 boxes stacked high. Volumes up to 30 or 40 m³ per row are possible.

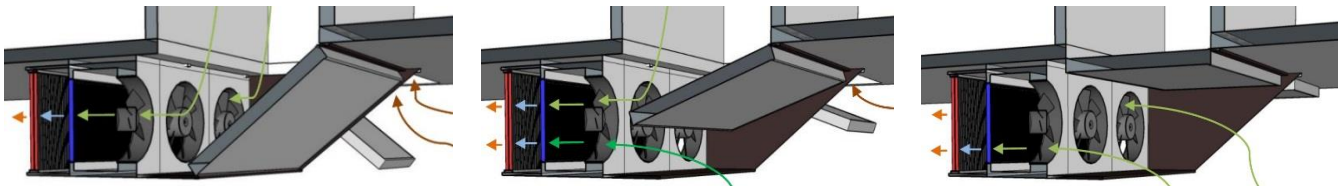


A cooling block hangs within the cell, which suctions the air through a hatch from the outside to the inside. The suctioned air is cooled down through the unit to achieve the desired moisture content in the cell. Above the fan a heating battery is placed to heat up the air to the desired temperature per row. It reduces the RH and the air can absorb the humidity from the product. Excessive heat can be discharged to another section, another cell or externally. An external heating source can be used to create additional heating rapidly.

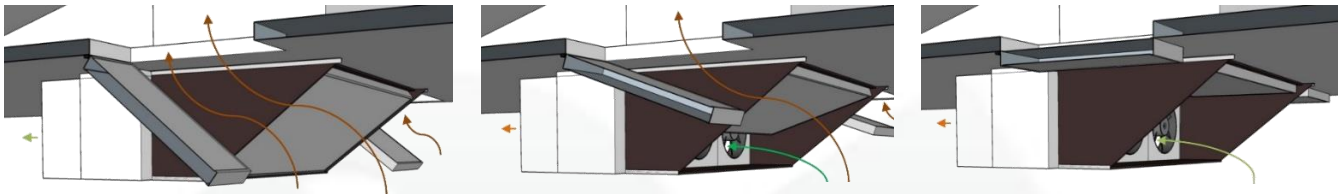
Section 1		12		11-01-2011	
Temp / RH settings.				9:25	
Choice: drying / post-drying / off	Off	Save as preset nr.		0	
Load preser nr.	12				
Settings same as preset	Drying	Post-drying		Measurem	
Product T °	Min. 34.0 C Max. 35.0 C Desired 31.0 C	Min. 34.0 C Max. 25.0 C Desired 25.0 C	16.0 C		
Room T ° 2	15.0 C 35.0 C 21.0 C	0.0 C 35.0 C 35.0 C	16.4 C		
Product RH		35 %	75 %		
Delta T °	6.0 C		0.4 C		
Delta AV	6.0 gr	10 gr	0.2 gr		
Duct AH	10 gr	6.0 gr	8.8 gr		
Hatch position	0 % 100 %	0 % 50 %	0 %		
Flow per box	1200 M3	600 M3	0 M ³		
Maximum time post-drying	150 Min.	Remaining			
Waiting time restart post-drying	300	Runtime restart post-drying	0:05		

The advanced ABC processor controls the whole installation and dries the seed to the desired moisture content; the most suitable (dry) air (outside or inside air) is suctioned. The air will be cooled down to achieve the desired Absolute Moisture Content (AH, in gr/kg of air) of the air, using condensation. Afterwards the air will be reheated so it is able to absorb more air. The air from the product will become drier than the outside air, and internal air is automatically used for the remaining drying process.

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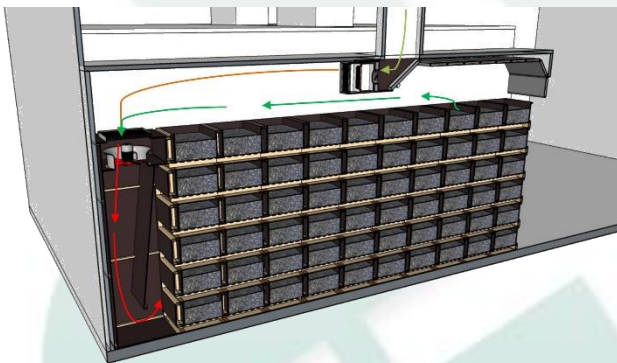


When the product is moist and/or the outside air is dry, outside air is aspirated (on the left). When the air in the cell becomes drier than outside, inside air is partially used (in the middle). When the outside air is too moist or the air from the product is dry, only inside air is used for the drying process (on the right).

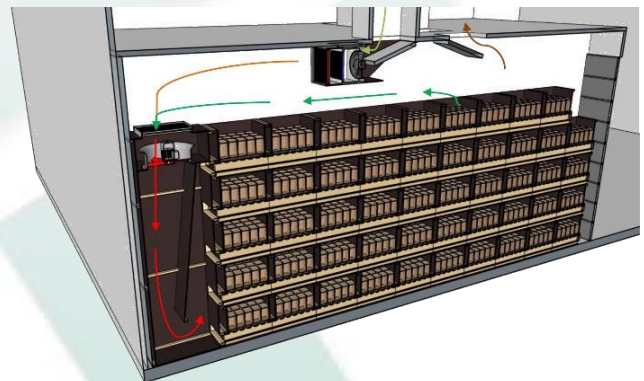


Next to the cooling-drying units, hatches are placed to discharge humid air. They are connected to suction hatches; 100% outside air means 100% opened position (on the left), 50% recirculation produces 50% discharge (in the middle) and with complete recirculation the discharge hatches are closed (on the right).

In narrow cells or wide cooling-drying units, the outlet hatches are placed behind the inlet hatches.



The box width and height depend on the product. Low boxes for seed in bulk, high ones for plants with seeds.



Low boxes for plants in little bags or seeds in cotton bags.



Overhead doors facilitate optimal use of the cell capacity.



The lay-out and design of the cells with boxes are client-specific. We will advise you.