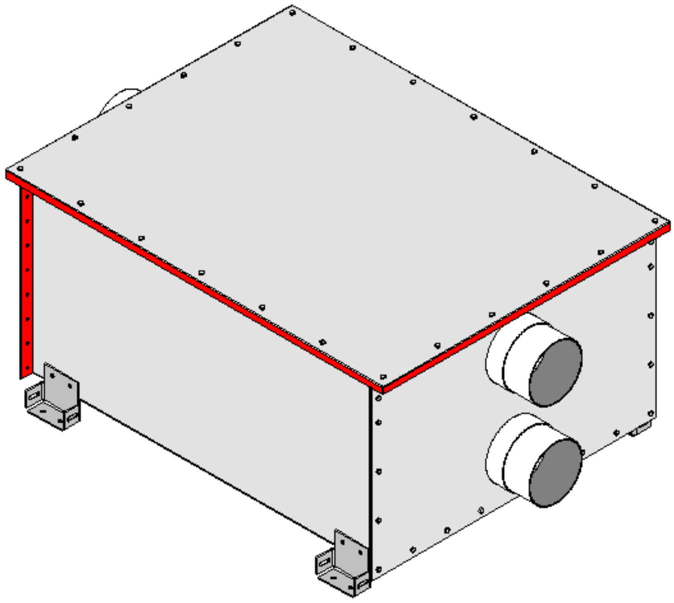
MORE

ENERGY SAVING MORE C3



SCOPE:
energy recovery on dehumidification / drying application

TECNOLOGY:
thermal exchange air / air

APPLICATIONS:

- Dehumidifier with molecular sieves
- Hot air Dryer

Until 3.000 m^3/h air flow.

SB_MORE – OUR ETHICS

"Energy is *more* than a cost": Energy saving for Sb is a consequence of its ethical approach towards the market. Cost shouldn't be only measure by its economical value, but also by a continuous research and innovation to gain a better future.

If money in the market is so scarce, and rare, to spend it you need really good reasons.

plastics machinery
The Colours of Quality

MORE	ENERGY SAVING MORE C3

KEY-POINTS

	MORE C3
Flexibility and universality: Energy Saving System can be not only installed as a new application, but also can be applied to other existing machines (also those ones produced by competitors).	S
Decrease of energy consumption on the air heating system: On those applications HT (High Temperature) which work at more than 150°C, it is possible to gain an energetic recovery up to 70% compare to standard starting applications.	S
Reduction on water consumes: On those applications with close loop circuit, that require to put down airflow temperature, through water heating exchanger, Energy Saving System allows to reduce consumption up to an 80% on the water cooling system.	S
Easy to install : Energy Saving System is based on the interception of air fluxes and is possible to be installed and placed according to customer requirements.	S
Modularity : Energy Saving System is based on modular thermal exchange components that allow flexibility in the way to calculate the necessary dimension for any air flow volume.	S
Extra-saving (only dehumidifiers): Energy Saving System gives an extra saving on dehumidifiers using the heat applied on the regeneration process.	O
	S = Standard O = Optional

MORE	ENERGY SAVING MORE C3

APPLIED TECHNOLOGY

Example of Thermal Exchange Module.

Energy Saving System uses modules of thermal exchange air to air. These modules, based on the first law of thermodynamic, allows the heat passage from hot air to cold air, keeping at the same time the two airflows separated.

The heating exchange modules are aluminium structures hermetically closed containing inside bundles of corrugated fins. Air flows, without being modified, collide with fins generating micro turbulences that lead the heat exchange. In this way, all the surfaces playing in the process are exploited at it maximum level reaching an efficiency from 65 to 70%

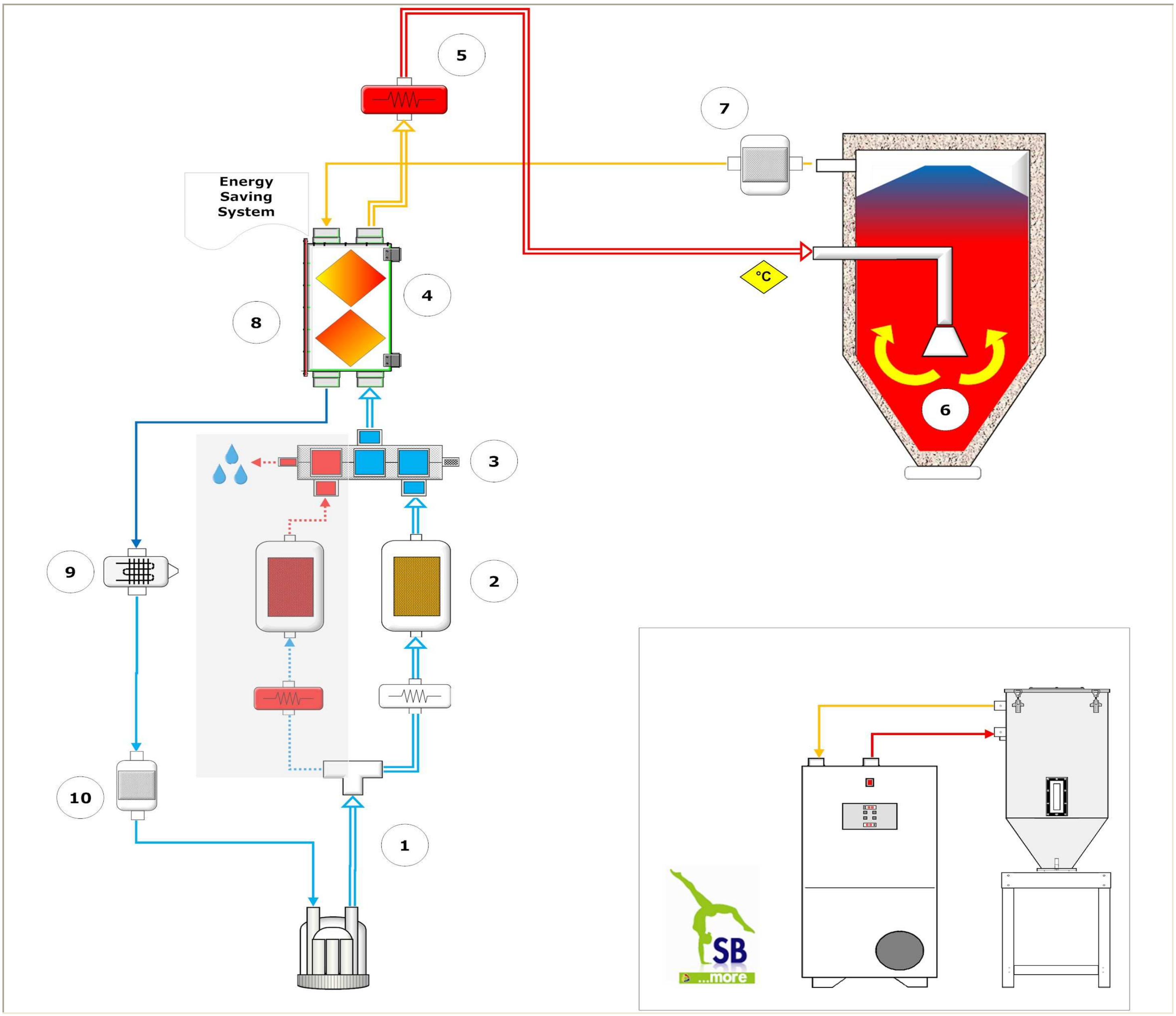
Dimensioning variables are calculated.

To dimensioning the final system of energy saving, it is necessary to consider the following variables:

- Air Flow's pressure and capacity
- Air Temperature
- Exchange Modules' dimensions
- Fins' intensity
- Energy saving gain required
- Hermetical seal
- Total degree of insulation

CONFIGURATIONS OF AIR /SILICATE DEHUMIDIFIER

Mono-temperature Configuration (*)



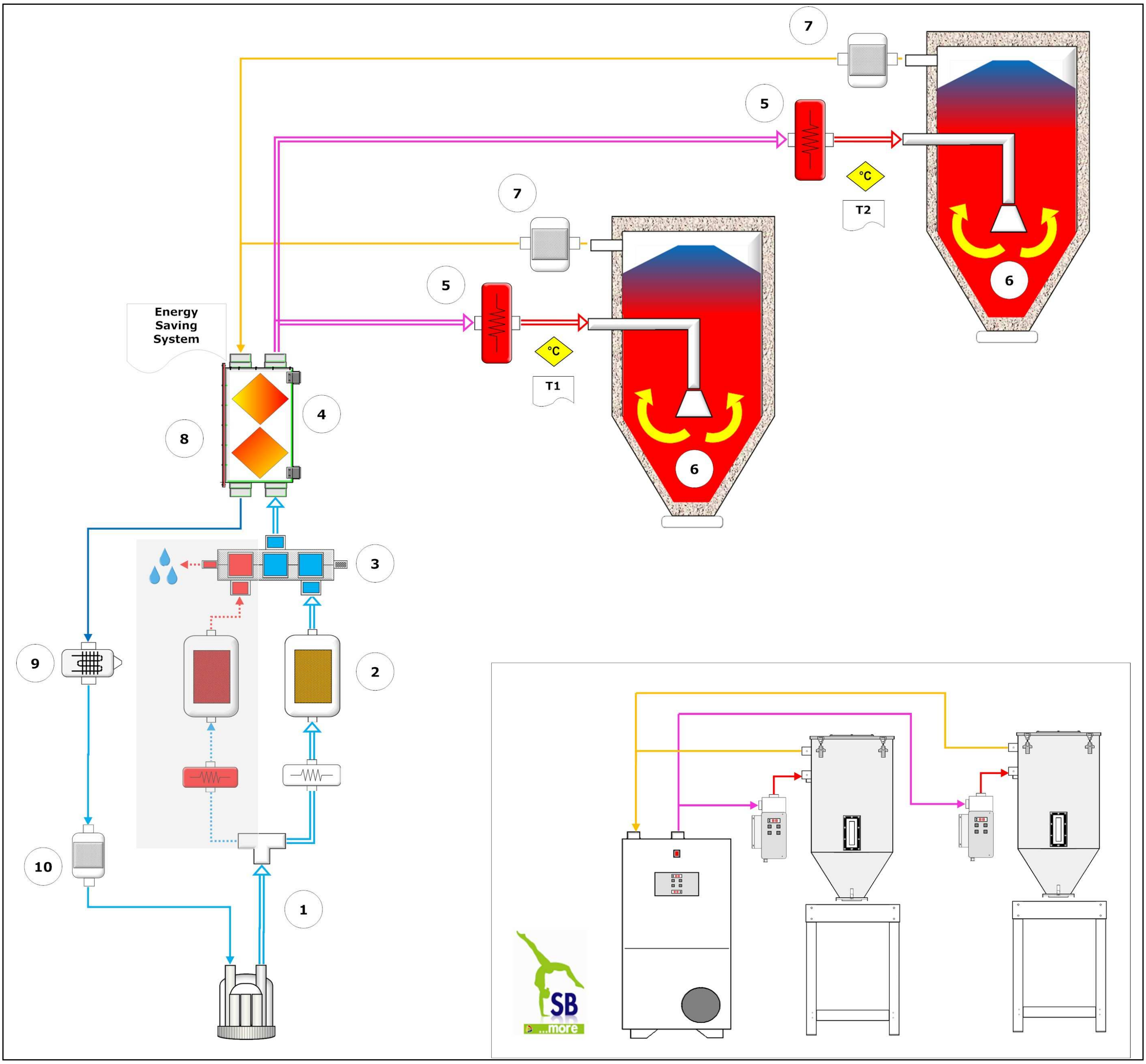
Cycle's process description with Energy Saving (close loop circuit on dehumidification) :
Air produced by blower (1) is dehumidified into the tower by Molecular Sieves (2) and is diverted by a valve into Energy Saving Application, where heat exchange occurs between the air flow that is coming back from the hopper. At this point, this preheated air is introduced into a heating chamber to reach the required process temperature (5) and after that to be conveyed into the hopper for being distributed by a diffuser cone (6).
The returning airflow became filtered (7) and conveyed towards the Energy Saving Application where heat exchange occurs with the process air flow (8). Finally, the air is cooled into a water heating exchange (water / air) (9), filtered again (in order to protect the blower) (10) and reinserted into the cycle.

(*)The example is based on simplified flow chart.

MORE

ENERGY SAVING MORE C3

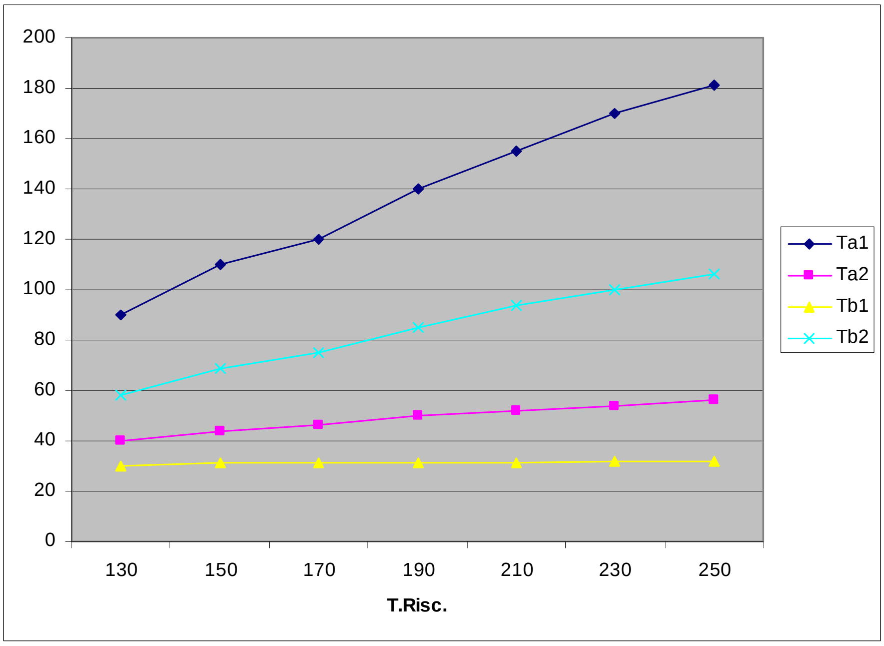
Multi-Temperature Configuration (*)



Cycle's process description with Energy Saving (close loop circuit on dehumidification) :
Air produced by blower (1) is dehumidified into the tower by Molecular Sieves (2) and is diverted by a valve into Energy Saving Application, where heat exchange occurs between the air flow that is coming back from the hoppers. At this point, this preheated air is introduced into a heating chambers (air boosters) to reach the required process temperature (5) and after that to be conveyed into the hoppers for being distributed by each diffuser cone (6).
The returning airflow became filtered (7) and conveyed towards the Energy Saving Application where heat exchange occurs with the process air flow (8). Finally, the air is cooled into a water heating exchange (water / air) (9), filtered again (in order to protect the blower) (10) and reinserted into the cycle.

(*)The example is based on simplified flow chart.

TECHNICAL DATA



T.Risc.	Ta1	Ta2	Tb1	Tb2	Dta=(Ta1-Ta2)	Dtb=(Tb2-Tb1)	h=Dtb/Dta	(Tb2-Tb1)/Tb2	Dtb % (*)
130	90	40	30	58	50	28	0,56	0,48	48%
150	110	44	31	69	66	38	0,57	0,55	55%
170	120	46	31	75	74	44	0,59	0,58	58%
190	140	50	31	93	90	54	0,6	0,67	67%
210	155	52	31	101	103	63	0,6	0,69	69%
230	170	54	32	106	116	68	0,58	0,70	70%
250	181	56	32	111	125	74	0,59	0,71	71%

(*) Dtb % = contribution as a percentage generated by Energy Saving effect on the final heat temperature Tb2, considering a returning temperature from the hopper Ta1, from 90 °C e 180 °C, and an exit temperature from the blower Tb1, from 30°C to 32°C