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## Energy savings in Asselin-Thibeau equipments

Since more than 10 years, the textile machines produced by Asselin-Thibeau have been designed with efficiency, and energy savings in mind, and have been permanently improved using the possibility of the latest technologies.

Here are listed the majors improvements now included in our machines:

- More than 85 % of the AC motors are driven by state of the art flux vector variable frequency drives. Intrinsically, motors powered from drives are not creating reactive energy back to the network, unlike motors running directly powered from mains.
- We select the newest ranges of variable frequency drives of from major drive manufacturers (Siemens, KEB, Rockwell...). They are designed with the Mosfet transistors of the last generation. Their efficiency has been improved up to 98 %, reducing thermal losses in the cabinets, and then reducing the heat dissipation fans and air coolers power. Running cooler electrical equipment also improves the life duration of the devices.
- The drives are powered from a common DC bus, making possible the energy fed back from a braking motor to feed up the other drives connected on the same DC bus, and not taking power from the supplying network. This arrangement is particularly efficient for machines running alternate cycles, like cross lappers : the energy coming from the braking of one carriage is used to accelerate the other one. In addition, for this kind of machine, we use DC power supplies regenerating the excess of braking energy to the main network, instead of dissipating it in braking resistors.
- All drives are set up and adjusted carefully to deliver the right voltage/frequency ratio to the motor, and the switching frequency of the drives has been increased. With these settings the energy losses in the motors (heat dissipation) has been drastically reduced.
- We deliver high efficiency "Eff2" motors as standard for the last 15% remaining motors running "on/off" directly powered by contactors from the main network. They are ancillary motors (mostly fans), and their cumulated power typically represent less than 10% of the total power of a line. We can also deliver "Eff1" motors upon request, for customers needing the upper class of efficiency.
- Each motor is selected to match the application, but is not oversized, that would jeopardize the energy. For example we limit the acceleration slopes of the largest inertia to avoid selecting too large motors that would run

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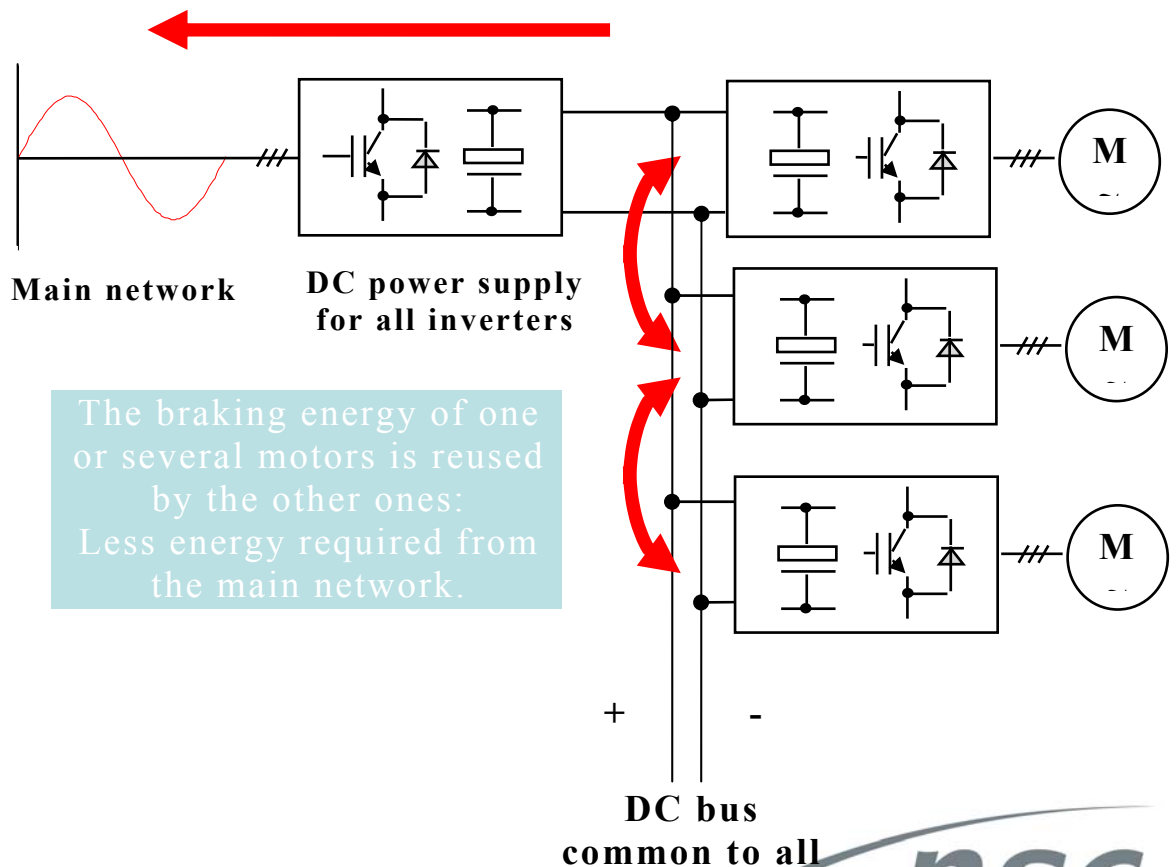
unloaded most of the time: the power factor and efficiency of a motor decreases when it is unloaded.

- In the control systems, we take care to switch off automatically ancillary motors that are not needed for some phase of the process, instead of running it "idle".
- The de-dusting, fibre transport and suction systems have been improved for better efficiency and to reduce energy losses in the pipes.
- The compressed air energy is also limited to the minimum.

For the same process and production, the averaged energy consumption has been reduced of about 10 % in the last years. In addition, Asselin-Thibeau is open to collaborate with the customers to match the specific requirements of the energy saving programs they are involved in, and can provide optional solutions allowing sometimes saving up to 20%.

### Principle of energy sharing and regeneration to the main network

Regenerative DC power supply:  
the excess of braking energy is  
sent back to the main network  
No braking resistor needed  
Less reactive power



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