

Energy measuring device

HEIDELBERG

Integrated energy measuring solution. Energy transparency is extremely helpful in enabling press operators to optimize machine settings and thus operating efficiency. If the relevant machine is equipped with an energy measuring device, the energy efficiency value can be seen at a glance on the Prinect® Wallscreen. Heidelberg® offers an energy measuring device that monitors and evaluates the energy consumption of presses and peripherals on an ongoing basis.

Innovative technology from Heidelberg. The energy measuring device works on the basis of standardized energy measuring guidelines from the VDMA (German Engineering Federation) and indicates the current energy requirements in kWh/1,000 sheets. This value is displayed immediately below the machine speed on the Wallscreen of the Prinect Press Center® during the production run. Another display on the Prinect Wallscreen shows the power consumption of the press and all peripheral systems with an own mains connection as a function of time. Detailed analyses are possible on a separate PC using Prinect Energy Reporting.

The energy measuring device thus ensures excellent transparency. It enables print shops to demonstrate their commitment to the environment and ensure carbon-neutral production by means of appropriate carbon offsetting.



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The energy measuring device offers an integrated solution for measuring and displaying energy efficiency.

Full integration of all components. Only by fully integrating the measuring device, peripherals, and press control system it is possible to create a solid basis for the continuous calculation of energy efficiency in kWh/1,000 sheets. In addition to the main measuring device in the press's main switch cabinet, secondary measuring devices are integrated into peripherals such as DryStar®, CutStar® or FoilStar®. Each switch cabinet with its own mains connection has a separate energy measuring device.

To monitor all peripherals, the various devices are connected to the main measuring device and this in turn has an Ethernet connection to the press control system. In this way, the energy measuring device offers an integrated solution for the continuous measurement and display of energy efficiency. It is available for all format classes and the majority of press series from Heidelberg.

Determining the actual requirements per sheet.

Each kilowatt-hour of energy generated causes CO₂ emissions. As well as being a key cost factor, the energy requirements during machine operation thus also have an environmental impact. After paper consumption, energy requirements are the next most important factor in CO₂ emissions from printing presses. These emissions are also a key consideration for print buyers, who are increasingly demanding a green production process.

However, monitoring a machine's current power consumption does not provide a reliable assessment of how efficiently it utilizes the energy it consumes. The consumption value is of little use if there is no direct correlation between energy requirements and print output.

What's more, measuring energy requirements and energy efficiency is an important part of the print shop certification process in line with energy management standard ISO 16001/ISO 50001.

Energy measuring device availability

Format

| 100 × 140 cm (39.37 × 55.12 in) 120 × 160 cm (47.24 × 62.99 in) | 70 × 100 cm (27.56 × 39.37 in) | 50 × 70 cm (19.69 × 27.56 in) | 35 × 50 cm (13.78 × 19.69 in) |
|--|--------------------------------|-------------------------------|-------------------------------|
| Speedmaster XL 145 | Speedmaster XL 106 | Speedmaster XL 75 | Speedmaster SX 52 |
| Speedmaster XL 162 | Speedmaster CX 102 | Speedmaster XL 75 Anicolor | Speedmaster SX 52 Anicolor |
| | Speedmaster SX 102 | Speedmaster SX 74 | |
| | Speedmaster CD 102 | | |
| | Speedmaster SM 102 | | |

| Component | Current power 04/20, 2012 11:02:00 AM kW | Power consumption 04/20, 2012 11:02:00 AM kWh | Power consumption rate kWh |
|-------------------|--|---|-------------------------------|
| Cylinder | 19 | 6.3 | 0.332 |
| Press | 861 | 107 | 0.12345 |
| Drifter | 83.7 | 6.5 | 0.078 |
| Total | 963.7 | 119.8 | 0.12696 |
| Print performance | 10,000 spm | 0.75 hour | |
| Energy efficiency | 3.33 kWh/1,000 spm | 0.00 00001 kWh spm | |

Prinect Energy Reporting enables energy values per job, shift, press or month to be recorded and analyzed.

Detailed analysis with Prinect Energy Reporting.

The energy measuring device enables precise and reliable monitoring of overall energy management. The actual energy requirements and the total power consumption of the press, including peripherals, are displayed on the separate PC as the dataset for a detailed analysis of all components using Prinect Energy Reporting.

This data can be evaluated according to various criteria. With Prinect Energy Reporting, it is possible to record and analyze the exact energy values per job, shift, press or month, for instance. Precise documentation of energy requirements and energy efficiency for each job gives print shops relevant and informative details for their customers.

The higher the speed, the greater the efficiency.

The key energy measuring value for each press is its efficiency. This is similar to a car, where the vital factor is how much fuel it needs per 100 kilometer – i. e. the energy input required for a particular output. It is this ratio that indicates the efficiency with which energy is utilized.

Unlike a car, however, a press has a specific power consumption – for components and systems that are provided before a single sheet is printed. Consequently, the faster the press operates, the more energy efficient it is. The more sheets the press prints per unit of time, the more effectively the energy used is distributed between the printed sheets and the more efficiently this energy is utilized. This means that the energy requirements per printed sheet fall as the print speed increases. Energy is a key cost factor and the energy measuring device pays for itself very quickly if the potential savings are realized.

Higher machine speeds do not only simply improve energy efficiency, though. They also boost productivity, which makes print shops more profitable. With their high performance levels, presses from Heidelberg thus offer even greater potential in this respect.

Increased energy efficiency: Potential savings of a Speedmaster XL 106-6+L

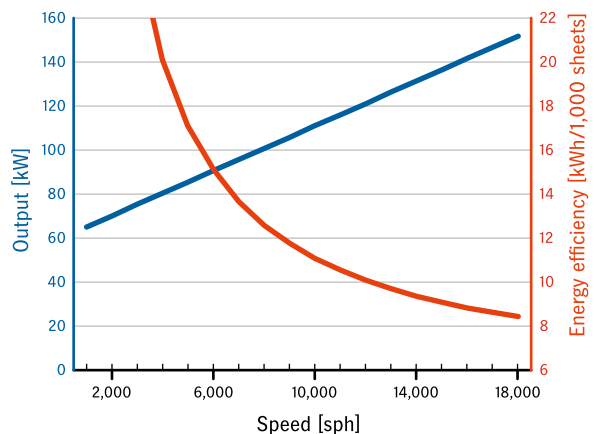
Increasing the speed from 10,000 to 18,000 sheets per hour:

- results in a saving of 2.8 kWh/1,000 sheets

If 36 million sheets are printed each year:

- this results in a saving of 100,800 kWh
- this results in a saving of 57 metric tons of CO₂¹

¹Each kilowatt-hour of energy generated causes 562 grams of CO₂ to be emitted (German energy mix, Federal Environment Agency, as at 05/2011).



Energy efficiency based on the example of a Speedmaster XL 106-6+L



Prinetx Wallscreen: The energy efficiency value in kWh/1,000 sheets is displayed in real time.

Boosting energy efficiency with Heidelberg

The energy measuring device plays a key role in achieving a long-term increase in the energy efficiency of equipment. Both presses and peripherals from Heidelberg are systematically designed to optimize energy efficiency. Heidelberg components have a number of key features that are particularly energy efficient:

Sinusoidal synchronous motors. The main drive Heidelberg uses is a sinusoidal synchronous motor. It benefits from a 95 percent efficiency level, the highest value achieved in drive technology. This energy efficiency is up to 5 percent higher than with other motors.

AirStar air supply cabinet. This is the only such system with a highly efficient fast-running, frequency-controlled turbo radial blower. The AirStar® system benefits from an efficiency level of 70 percent, more than double that of a conventional side channel blower.

CombiStar Pro. The CombiStar® Pro supports alcohol-free printing for a lower environmental impact. If the outdoor temperature is less than 20 °C (68 °F), free cooling controls the temperature of the inking unit. To save energy, the cooling unit is (automatically) activated only when the temperature rises above this level.

DryStar. Round-nozzle technology and the small distance of just 80 millimeters (3.15 inches) between the slide-in dryer modules and print sheets maximize energy efficiency during drying. What's more, hot air is generated directly in the slide-in dryer module. This eliminates the transport losses that would occur with external generation.

Heat recovery. In the DryStar dryer, hot air removes the moisture from the sheet. The cross-flow heat exchanger recovers up to 20 percent of the energy from this moist exhaust air and this is used to pre-heat fresh, dry air. No moisture is transferred.

Water-cooled press. Water cooling is an energy-efficient solution. Water has a thermal absorption capacity around four times higher than air. Using a coolant to convey heat requires far less energy than with air cooling. The energy contained in the coolant can be utilized within the company.