

CIRCULATOR PUMP ENERGY RATING LABEL

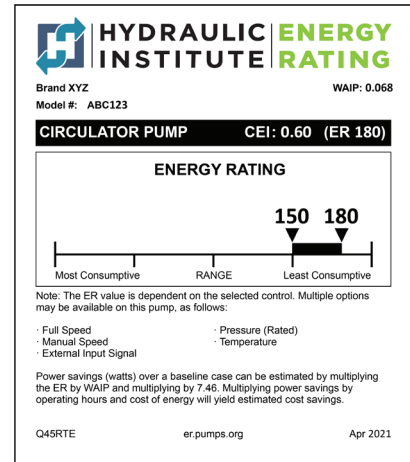
An industry label for energy efficient circulator pumps



Big Steps Towards Greater Sustainability

Homes and businesses rely on circulators to operate heating, cooling and domestic hot water systems. The Energy Rating label provides a clear and easy way to identify energy efficient circulators and provides a range of potential savings. The higher the Energy Rating, the more savings the circulators can provide the end user. Labeled circulators provide:

- Trusted performance data
- Improved comfort
- Tested to industry standards
- Easy drop-in upgrade
- Broad industry participation
- Fully integrated controls
- Optimized performance
- Qualifies for utility rebates



The HI Energy Rating is the Industry Recognized Mark for Energy Efficiency

The Circulator Energy Rating label is intended to be used by designers, contractors, distributors, and end users to select more efficient products to meet energy savings, life-cycle cost, and environmental impact goals. Rated circulators benefit customers by saving energy, maximizing system efficiency, lowering operating costs, and reducing carbon emissions.

If the market transitions to efficient energy rated circulators, it could unlock enough savings over the life of the circulator to:



Provide a year's worth of electricity for more than

1.5M
homes



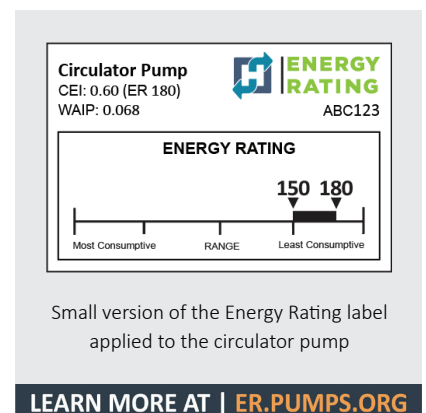
Offset the CO2 emission from more than

1B
gallons of gas



Energy Savings could reach over

1B
dollars



Reading the Energy Rating Label

The Energy Rating label enables the comparison of properly selected circulator pumps based on the average power consumption. It can be used to estimate the power savings or to compare the power savings between multiple circulator options. The Energy Rating label will be displayed in sales literature, on packaging, and on the product to make it easy for customers to identify an energy efficient circulator.

HYDRAULIC INSTITUTE ENERGY RATING

Brand XYZ WAIP: 0.068
Model #: ABC123

CIRCULATOR PUMP CEI: 0.60 (ER 180)

ENERGY RATING

150 180

Most Consumptive RANGE Least Consumptive

Note: The ER value is dependent on the selected control. Multiple options may be available on this pump, as follows:

- Full Speed
- Manual Speed
- External Input Signal
- Pressure (Rated)
- Temperature

Power savings (watts) over a baseline case can be estimated by multiplying the ER by WAIP and multiplying by 7.46. Multiplying power savings by operating hours and cost of energy will yield estimated cost savings.

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- 1. Basic Information**
Pump brand, model number, weighted average input power (in horsepower) for a baseline ECM circulator.
- 2. Circulator Energy Index (CEI)**
Rating index comparing power consumption to a traditional circulator. Lower values are better.
- 3. Energy Rating**
Rating indicating relative energy usage of a basic model compared to other basic models. The higher the energy rating, the greater the savings. The range represents the most and least consumptive available control modes.
- 4. Available Controls**
Shows available control methods.
- 5. Estimated Savings**
Illustrates the method for using the ER rating to determine actual savings

Standardizing Calculations

The Energy Rating label provides an industry standard savings calculation. Below is an example using the sample label.

Power Savings
 $\text{Energy Rating} \times \text{WAIP} \times 7.46^1$
 $180 \times 0.068 \text{ hp} \times 7.46$
 Estimated Power Savings = 91 Watts

Energy Savings
 $\text{Estimated Power Savings}/1,000 \times \text{Operating Hours}$
 $91 \text{ Watts}/1,000 \times 3,000 \text{ hours/year}$
 Energy Savings (kWh) = 273 kWh/year

Cost Savings
 $273 \text{ kWh/year} \times \$0.1331/\text{kWh}^2$
 Cost Savings = \$36.30/year

(1) Conversion factor from horsepower to watts
 (2) Average cost of electricity in the U.S.

Upgrading to a Better Pump Choice

When replacing a circulator pump, choosing an Energy Rating labeled pump can typically achieve 78% electrical energy savings compared to a traditional circulator. This is made possible with the use of ECM or electrically commutated motors versus standard induction/asynchronous motors. This upgrade alone provides significant reduction in energy consumption.

Additionally, incorporating variable speed control allows the pump to react to the system or the environment it is operating in by speeding up or slowing down. This allows reduced energy cost and improved comfort not achievable with traditional circulators. Proper sizing and selection of circulator pumps, in combination with the HI Energy Rating, is vital to achieving the most efficient pumping system.

