

Energy Efficiency with Vacuum Technology: The SRC Wireless Remote Control

The power generation of vacuum tube lifter units can be switched on and off as needed using a wireless remote control integrated into the operating unit. This can save up to 40 % on operating costs.

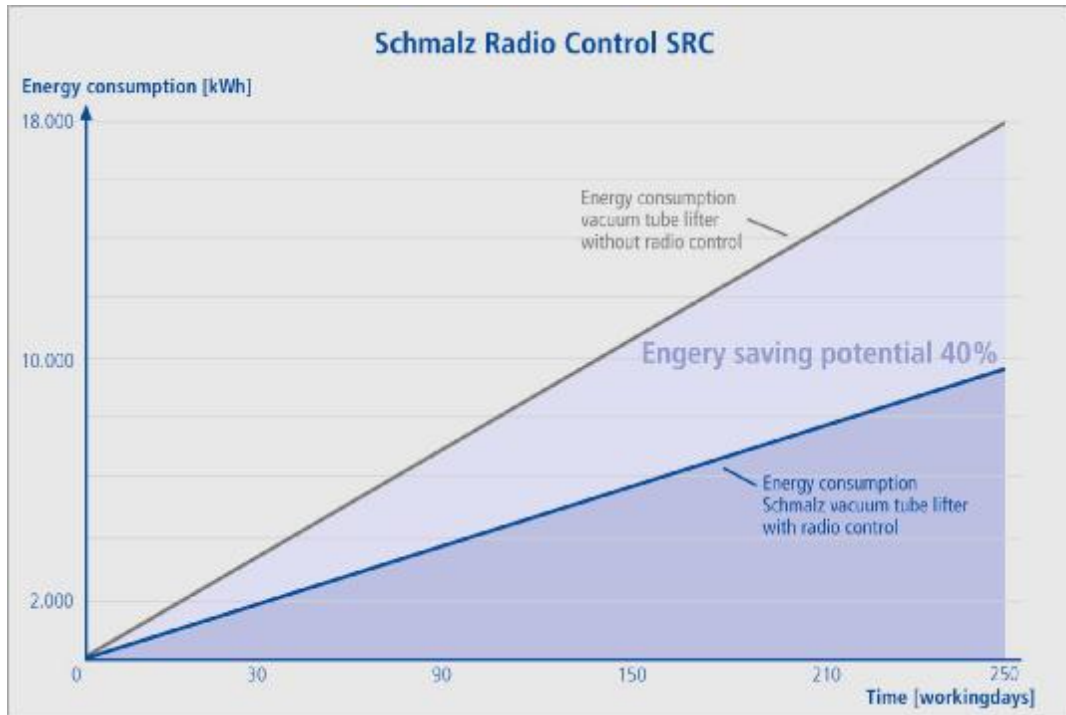
To prove it, vacuum specialist Schmalz compared two different vacuum tube lifter units. One of the units had a Schmalz Radio Control (SRC) wireless remote control integrated into the operating unit. This allowed the connected vacuum blower to be switched on and off as needed to suit interruptions in work. The other unit did not have this energy saving function, so vacuum generation remained in continuous operation.

The efficiency comparison of the two vacuum tube lifter units was based on the following conditions:

- Identical power consumption of the vacuum blower (4 kW)
- Average industrial electricity price of EUR 0.1255 per kWh
- CO₂ emissions of 0.921 kg CO₂ per kWh of power used
- Operating time of 245 work days per year

With the first lifting unit, when used for a period of one hour, the blower stays switched on continuous operation the entire time. In comparison, the tube lifter unit equipped with the SRC wireless remote control runs for only 36 minutes (as measured based on typical operation). When calculated for a work day of eight hours with two operating shifts, the energy consumption is only 38.4 kWh in comparison with 64 kWh for the machine in continuous operation. When compared over the course of a year, using the SRC wireless remote control, the user can save up to 6,272 kWh in power, which translates to a savings of around EUR 790 on operating costs (40%) and a 40% reduction in CO₂ emissions, which is better for the environment.

The user benefits from the long service life of the products, reduces primary energy consumption and lowers operating costs. In addition, the user is helping to protect the environment.



Energy efficiency and sustainability – The SRC Radio Control from Schmalz

Sample calculation:

	Vacuum hose lifting device in continuous blower mode without radio control	Vacuum hose lifting device in continuous blower mode with radio control
Calculation of annual energy consumption		
Power consumption of blower [kW]	4	4
Running time [min./h.] ¹	60	36
Daily energy consumption (double-shift system) [kWh] ²	64.00	38.40
Days of operation per year ³	245	245
Annual energy consumption [kWh] ⁴	15,680.00	9,408.00
Calculation of the resulting CO₂ emissions		
CO ₂ emissions for energy generation [kg CO ₂ / kWh] ⁵	0.921	0.921
Annual CO ₂ emissions [kg CO ₂]	14,441.28	8,664.77
Calculation of annual operating costs		
Cost of energy generation [€/ kWh] ⁶	0.1255	0.1255
Annual operating costs [€] ⁷	1,967.84	1,180.70

Potential savings for electricity (input factor)	6,272.00 kWh per year
Reduction in emissions	5,776.51 kg CO₂ per year
Savings in operating costs	€787.14 per year
Savings in operating costs	40% per year

¹ Measured running time of the blower at actual use period, based on a typical operation sample

² Power consumption of blower [kW] * 8 [h.] * 2

³ Assuming the average number of working days per year on a company level

⁴ Daily energy consumption (double-shift system) [kWh] * Days of operation per year

⁵ 1 kWh = 0.921 kg CO₂, source: <http://172.16.1.34/xampp/mediawiki/index.php/Kohlendioxid>

⁶ Average commercial electricity price (incl. electricity tax) in Germany, source: VEA. BVDE, April 2008

⁷ Cost of energy generation [€/ kWh] * Annual energy consumption [kWh]

Energieeffizienz und Nachhaltigkeit – Die Funkfernsteuerung SRC von Schmalz

Beispielrechnung:

	Vakuum-Schlauchheberät mit Gebläsedauerbetrieb ohne Funkfernsteuerung	Vakuum-Schlauchheberät mit Gebläsedauerbetrieb mit Funkfernsteuerung
Berechnung Energieverbrauch pro Jahr		
Leistungsaufnahme Gebläse [kW]	4	4
Laufzeit [min/h] ⁸	60	36
Energieverbrauch pro Tag, 2-Schicht-Betrieb [kWh] ⁹	64,00	38,40
Betriebstage pro Jahr ¹⁰	245	245
Energieverbrauch pro Jahr [kWh] ¹¹	15.680,00	9.408,00
Berechnung des resultierenden CO₂-Ausstoßes		
CO ₂ -Ausstoß zur Energieerzeugung [kg CO ₂ / kWh] ¹²	0,921	0,921
CO ₂ -Ausstoß pro Jahr [kg CO ₂]	14.441,28	8.664,77
Berechnung der Betriebskosten pro Jahr		
Kosten für Energieerzeugung [€/ kWh] ¹³	0,1255	0,1255
Betriebskosten pro Jahr [€] ¹⁴	1.967,84	1.180,70

Einsparpotenzial Inputfaktor Strom	6.272,00 kWh p. a.
Umweltentlastung	5.776,51 kg CO₂ p. a.
Betriebskostensparnis	787,14 € p. a.
Betriebskostensparnis	40 % p. a.

⁸ Laufzeit des Gebläses bei tatsächlicher Nutzungszeit, gemessen am Beispiel eines typischen Arbeitsbetriebs

⁹ Leistungsaufnahme Gebläse [kW] * 8 [h] * 2

¹⁰ Annahme: Durchschnittliche Anzahl Arbeitstage pro Jahr auf Unternehmensebene

¹¹ Energieverbrauch pro Tag, 2-Schicht-Betrieb [kWh] * Betriebstage pro Jahr

¹² 1 kWh = 0,921 kg CO₂, Quelle: <http://172.16.1.34/xampp/mediawiki/index.php/Kohlendioxid>

¹³ Durchschnittlicher Industriestrompreis (inkl. Stromsteuer) in Deutschland, Quelle: VEA. BVDE, April 2008

¹⁴ Kosten für Energieerzeugung [€/ kWh] * Energieverbrauch pro Jahr [kWh]