

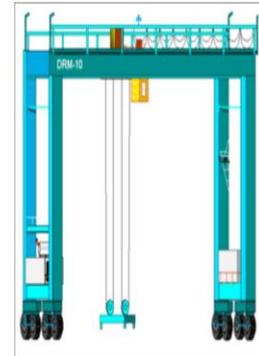
The application of AS510 series AFE in the energy saving transformation of tire crane

I. AS510 series AFE Rectifier unit

Power range: 30Kw-450Kw

Technical features

1. Adopt active rectification technology, with power factor close to 1
2. Have the function of energy feedback
3. Current harmonic full load less than 5%
4. DC bus is more stable
5. Perfect heat dissipation structure design
6. Standard LCL filter



II. Solution overview

The traditional tire crane is powered by diesel generator set. In the process of container lowering and cart, trolley braking, the motor is in the state of regenerative power generation. The electric energy converted from potential energy cannot be fed back to the power grid. It can only flow to the braking resistance through the braking unit on the DC side, and become heat energy to be consumed, so as to avoid over-voltage of the DC side bus. After the implementation of the oil to electricity project, the tire crane has realized the city power supply. On this basis, the installation of AFE active feedforward unit can return this part of renewable energy to the power grid, further reduce energy consumption, at the same time, AFE can reduce the current harmonics of inverter equipment, improve the power factor of power supply, and improve the quality of power supply.



Outline drawing of tire crane

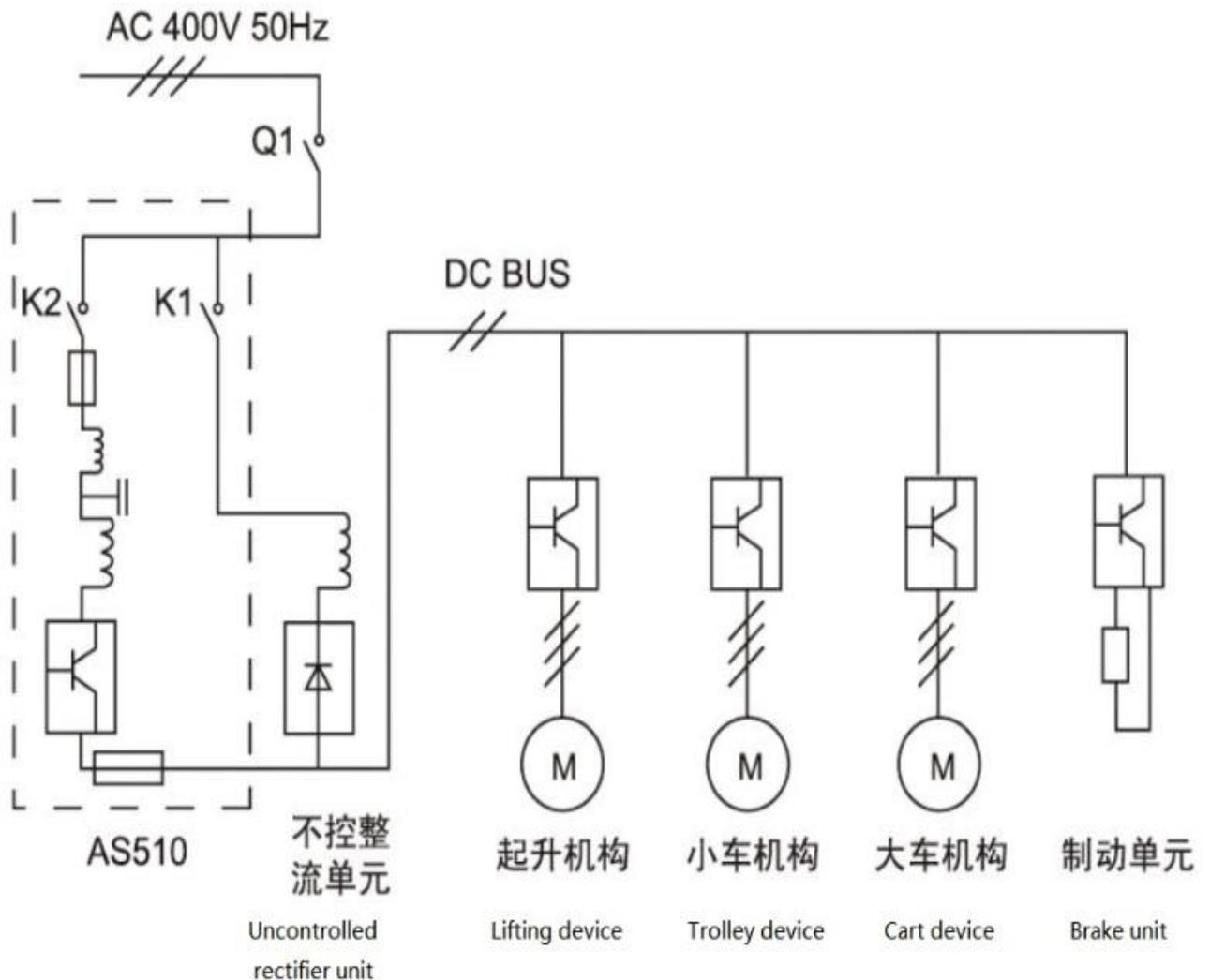
III. Technical Features

Optimize power grid quality, improve power factor and reduce harmonic

Test Items	Use AFE data	Use diode rectifier data
Harmonic content of grid voltage	1.5%	7%
Harmonic content of grid current	3.7%	35%
System power factor	0.99	0.8

IV. Site application of tire crane transformation

Electrical circuit diagram



When the diesel generator is used on site, the switching of the system only working in the rectification state can be completed quickly without switching back to the original power supply system, and only a switching command of closing the feedback function is needed to protect the diesel generator from damage

Application effect : The energy saving effect is remarkable, and the power saving rate is over 26%.