

Frequency converter rectifier filter for attention in the application of electrolytic capacitors



JINPEI, as a professional manufacturer of electrolytic capacitors, devotes to the filter circuit with high ripple current electrolytic capacitor, low ESR electrolytic capacitor, the snap - in electrolytic capacitor, the technology development and production of screw of the electrolytic capacitor, at the same time will be JINPEI brand electrolytic capacitor for many years in the application of frequency converter rectifier and filter circuit experience sharing is as follows:

The simplest input converter connection way as the filter capacitor input type, but at this time of the filter capacitor current stress is the largest, not only have the rectifier input ripple current to smooth, filter capacitor and inverter ripple with sample is created that needs to be smooth. Inverter driven induction motor, for example, 380 v three-phase induction motor per kilowatt needs about 2 a current, 10 kw need 20 a current, the current need is completely filter capacitor smoothed out to ensure the normal operation of the converter. At this moment need rectifier output current average of 17 a, through the filter capacitor ripple current of about 25 a. Rectifier output ripple current and frequency converter of ripple current calculation according to the root mean square value of about 32 a, that is, a 10 kw three-phase 380 v input inverter filter with the snap in electrolytic capacitor filter under the condition of maximum load will have effect value of 32 a ripple current. A 400 v / 6800 uF allowed by the frequency converter special screw electrolytic capacitor ripple current effective value less than 20 a, less than the required filter ripple current value. Therefore, at present most of the frequency converter rectifier filter with high ripple current electrolytic capacitor are working in 2 ~ 3 times of ripple current condition, make high ripple current greatly reduces the service life of electrolytic capacitor, which became a soft rib of frequency converter, also caused the user to change regularly as filter circuit with high ripple current electrolytic capacitor is not normal phenomenon, in fact if use two 330 uF high ripple current electrolytic capacitor in parallel as well as the highest working temperature from 105 °C can basically solve the problem, of course the price is the rising cost of manufacturing.



In addition to the frequency converter, such as inverter arc welding machine and other power electronic equipment filter with the snap - in electrolytic capacitor working conditions and the inverter also similarly exist the contradiction between performance and cost, actually two less ripple current basically can solve the problem, of course, ripple current produced by frequency converter is generally unable to eliminate from the filter capacitor, the only can restrain the ripple current is rectifier output ripple current, such as using inductance input type filter Can greatly reduce the rectifier output ripple current, therefore, in order to ensure the service life of converter (more at the same time to improve the power factor of course) should be between the rectifier and filter the snap - in electrolytic capacitor and inductor (reactor).



Power amplifier rectifier filter with the selection of electrolytic capacitors

HI - FI power amplifier usually require tens of thousands of micro method of screw electrolytic capacitor, why? To ensure that the distortion degree of the HI - FI power amplifier is extremely low, need power filter with screw electrolytic capacitor is not only to filter the output of the rectifier power frequency and high order harmonic ripple voltage component, but also absorbed by the HI - FI power amplifier to produce the entire range of frequency response of ripple current and even than the upper limit of frequency response and high ripple current, ensure the HI - FI power amplifier power "absolute peace". If all these ripple current are high ripple current electrolytic capacitor absorption, HI - FI power amplifier power can "absolute peace". As a filter with high

ripple current electrolytic capacitor need what kind of performance to meet this requirement?One very large capacitance, to ensure that the low frequency, low impedance;The second is the ESR as low as possible, in terms of shunt resistance can be ripple current "all" to capacitor instead of the amplifier.As a result, many H1 - fans of F1 as rectifier filter with high ripple current electrolytic capacitor brand has a high requirement, its the main reason is that it has a very low ESR, such as JINPEI capacitor electrolytic manufacturers production of low ESR electrolytic capacitor ESR can reach 6 m Ω .