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CALCULATION OF THE PARAMETERS OF UNIVERSAL HARMONIC FILTER FOR THYRISTOR CURRENT REGULATOR – ROTOR TYPE ELECTROMAGNET SEPARATOR SYSTEM

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Authors

I.V. Volkov, V.P. Stiazhkin, O.A. Zaichenko

Institute of Electrodynamics National Academy of Sciences of Ukraine,
pr. Peremohy, 56, Kyiv, 03057, Ukraine,
e-mail: tems@ukr.net

Abstract

The results of the thyristor current regulator – rotor type electromagned separator system influence to the mains supply are illustrated and analysis of its is carried out. The passive filtration method selection is justified and calculation of the parameters of universal current harmonic filter has been made, thereby reducing the level of generated current harmonics to acceptable standards. The results of analysis of influence to the mains supply of the system with a universal current harmonic filter are illustrated. References 9, figures 4, tables 4.

Key words: thyristor current regulator, rotor type electromagnet separator, electromagnetic compatibility, universal current harmonic filter, total harmonic distortion, power network parameters quality.

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References

1. Volkov I.V. The new concept of the construction of power circuits variable frequency drives. *Tekhnichna Elektrodynamika*. 1999. No 4. Pp. 21-26. (Rus)
2. Volkov I.V., Stiazhkin V.P., Zaichenko O.A. The mathematical model of the magnet coupled magnetization windings system of the 6ERM separator that supplied by the semiconductor dc regulators. *Energoberezhenie, Energetika, Energoaudit*. 2013. Vol. 2. No 8(114). Pp. 208-213. (Rus)
3. Zharkin A.F., Pazhejev A.G. Single-phase active power factor correctors for multimodal systems of power. Kyiv: Instytut elektrodynamiky Natsionalnoi Akademii Nauk Ukrainy. 2014. 212 p. (Ukr)
4. Shidlovskii A.K., Zharkin A.F. The higher harmonics in low voltage electrical networks. Kyiv: Naukova dumka, 2005. 210 p. (Rus)
5. Duran R.C., McGranaghan M.F., Beaty H.W. Electrical power systems quality. New York: McGraw-Hill, 1996. 260 p.
6. Fujita H., Yamasaki T., Akagi H. A hybrid active filter for damping of harmonic resonance in industrial power systems. *IEEE Trans. on power electronics*. 2000. No 2. Pp. 215-222. DOI: <https://doi.org/10.1109/63.838093>
7. Levin M., Hoevenaars A., Volkov I., Kuznetsov V. Universal harmonic mitigating system. Patent USA, no. 6.127.743, 2007.
8. Singh B., Singh B.N. A review of three-phase improved power quality AC-DC converters. *IEEE Trans. on indust. electron*. 2004. Vol. 51. No 3. Pp. 641-660. DOI: <https://doi.org/10.1109/TIE.2004.825341>

9. Tihanyi L. Electromagnetic Compatibility in power electronics. IEEE Press. New York. 1995. P. 402.

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