

General

Contents

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Phase compensation [Information within brackets in this document refers to local regulations] These recommendations concern fundamental concepts related to reactive power and phase compensation (also frequently known as power factor correction), harmonics and filters, and a number of technical and economic aspects of phase compensation by means of power capacitors. 1 Introduction 2 References 3 Consumption and generation of reactive power 3.1 Rotary phase compensators 3.1.1 Synchronous generators 3.1.2 Synchronous compensators 3.1.3 Synchronous motors 3.2 Capacitors 4 Phase compensation 5 Determination of capacitor rating 5.1 Exceeded reactive power consumption 5.2 Phase compensation is economically justifiable 5.3 Connection to a fully loaded sub-distribution 5.4 Phase compensation at the project design stage of a new plant 5.5 Capacitors for voltage regulation 5.6 Starting of large machines 6 Compensation methods 6.1 Synchronous motors 6.2 Capacitor banks 6.2.1 Central compensation 6.2.2 Group compensation 6.2.3 Direct compensation 7 Automatically controlled capacitor banks 8 Direct-compensated equipment 8.1 Induction motors 8.2 Distribution transformers0 8.3 Static converterinstallations1 9 Harmonic and resonance problems2 10 Switching current surges 3 11 Risks/Problems5 11.1 Intermediate voltage 11.1.1 Switching currents5 11.1.2 Voltage rise, capacitors 11.1.3 Voltage rise, transformer 11.1.4 Switching order, filters 11.1.5 Disturbances 11.1.6 Installation - losses 11.1.7 Resonance - discharge 11.2 Low voltage 11.2.1 Switching currents