1. Record Nr. UNINA9910146242303321

Autore	Kasicki Ismail
Titolo	Analysis and design of low-voltage power systems : an engineer's field guide / / Ismail Kasikci
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2004
ISBN	1-280-56083-5 9786610560837 3-527-60646-7 3-527-60233-X
Descrizione fisica	1 online resource (411 p.)
Disciplina	333.7932 621.3191
Soggetti	Electric power systems Low voltage systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 381-382) and index.
Nota di contenuto	Analysis and Design of Low-Voltage Power-Systems; Contents; Foreword; Symbols; Abbreviations; 1 Introduction; 2 Planning and Project Management; 2.1 Guidelines for the Remuneration of Architects and Engineers and Regulations for Contracting System Installations; 2.2 Guidelines for Project Planning of Electrical Systems; 3 Electrical Systems; 3.1 Medium-Voltage Systems; 3.2 Low-Voltage Systems; 4 Transformers; 4.1 Physical Basis; 4.2 Cores; 4.3 Windings; 4.4 Types; 4.5 A.C. Transformers; 4.5.1 Design; 4.5.2 Principle of Operation; 4.5.3 No-Load Voltage; 4.5.4 Voltage and Current Transformation 4.5.5 Transformer Loading4.6 Three-Phase Transformers; 4.6.1 Design; 4.6.2 Winding Connections; 4.6.3 Connection Symbols; 4.6.4 Parallel Connection of Transformers; 4.7 Special-Purpose Transformers; 4.7.1 Current Transformers; 4.7.2 Voltage Transformers; 4.7.3 Autotransformers; 4.8 Efficiency of Transformers; 4.9 Protection of Transformers; 4.10 Selection of Transformers; 4.11 Rules of Thumb for Calculating Short Circuit Currents on the Low-Voltage Side; 4.12 Examples for Transformers; 4.12.1 Example 1: Calculation of the Initial Symmetrical Short Circuit Current for a Transformer

4.12.2 Example 2: Calculation of Equalizing Currents4.12.3 Example 3: Economic Efficiency of Transformers; 4.12.4 Example 4: Calculation of Efficiency Over a Year; 4.12.5 Example 5: Calculation of Efficiency; 5 Asynchronous Motors (ASM); 5.1 Designs and Types; 5.1.1 Principle of Operation (No-Load); 5.1.2 Typical Speed-Torque Characteristics; 5.2 Properties Characterizing Asynchronous Motors; 5.2.1 Rotor Frequency; 5.2.2 Torque; 5.2.3 Slip; 5.2.4 Gear System; 5.3 Startup of Asynchronous Motors; 5.3.1 Direct Switch-On; 5.3.2 Star Delta Startup; 5.4 Speed Adjustment
5.4.1 Speed Control by the Slip5.4.2 Speed Control by Frequency; 5.4.3 Speed Control by Pole Changing; 5.4.4 Soft Starters; 5.4.5 Motor Operating Modes; 5.5 Project Planning of Drives; 5.5.1 Example 1: Calculation With SIKOSTART; 5.5.2 Example 2: Calculation of Overload and Starting Conditions; 5.5.3 Example 3: Calculation of Motor Data; 5.5.4 Example 4: Calculation of the Belt Pulley Diameter and Motor Power; 5.5.5 Example 5: Dimensioning of a Motor; 6 Emergency Generators; 6.1 Generator-Specific Limiting Operational Values; 6.2 Planning a Standby Generator
6.3 Example: Calculation of Standby Generator Power7 Equipment for Overcurrent Protection; 7.1 Electric Arc; 7.1.1 Electric Arc Characteristic; 7.1.2 DC Cut-Off; 7.1.3 AC Cut-Off; 7.1.4 Transient Voltage; 7.2 Low-Voltage Switchgear; 7.2.1 Characteristic Parameters; 7.2.2 Main or Load Switches; 7.2.3 Motor Protective Switches; 7.2.4 Contactors and Motor Starters; 7.2.5 Circuit Breakers; 7.2.6 RCDs (Residual Current Protective Devices); 7.2.7 Main Protective Equipment; 7.2.8 Meter mounting boards with main protective switch; 7.2.9 Fuses; 7.2.10 Power Circuit Breakers
7.2.11 Load Interrupter Switches

Sommario/riassunto

You are responsible for planning and designing electrical power systems? Good. Hopefully you know your way through national and international regulations, safety standards, and all the possible pitfalls you will encounter. You're not sure? This volume provides you with the wealth of experience the author gained in 20 years of practice. The enclosed CAD software accelerates your planning process and makes your final design cost-efficient and secure.