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# **Guidance on Industry Standard for Low Voltage Motor Controllers and Motor Control Centers (NEMA ICS-18)**

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**GIS 12-106**

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**BP GROUP**  
**ENGINEERING TECHNICAL PRACTICES**

## Foreword

This is the first issue of Engineering Technical Practice (ETP) GIS 12-106 . This Guidance on Industry Standard (GIS) is based on the following heritage documents from merged BP companies:

**Amoco (ACES)**

A EL-MC-LV-P

Electrical Motor Controllers Low Voltage Supply Specification

**BP Chemicals, Inc.(CPs)**

CP 17-6-2

Motor Control Centers 600 V Class

**BP Gulf of Mexico Deepwater (GOMDW)**

1400-20-EL-SP-4024

Low Voltage Motor Control Centers

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Page 2 of 14

## Table of Contents

|                                                                    | Page |
|--------------------------------------------------------------------|------|
| Foreword .....                                                     | 2    |
| Scope .....                                                        | 4    |
| 1. General .....                                                   | 4    |
| 1.2 Referenced Standards .....                                     | 4    |
| 2. Definitions .....                                               | 4    |
| 3. Classifications .....                                           | 4    |
| 3.1 Classes and Types .....                                        | 4    |
| 3.2 Classes of Motor Control Centers .....                         | 4    |
| 3.3 Circuit wiring .....                                           | 4    |
| 4. Characteristics and ratings .....                               | 5    |
| 4.3 Continuous current ratings of buses .....                      | 5    |
| 5. Product marking, installation and maintenance information ..... | 5    |
| 5.2 Handling, installation, operation and maintenance .....        | 5    |
| 5.3 Marking and labeling .....                                     | 5    |
| 7. Construction .....                                              | 6    |
| 7.1 Vertical section .....                                         | 6    |
| 7.2 Wiring space .....                                             | 6    |
| 7.3 Unit mounting .....                                            | 6    |
| 7.8 Enclosures .....                                               | 7    |
| 7.9 Bus .....                                                      | 8    |
| 7.10 Breakers .....                                                | 9    |
| 7.11 Contactors .....                                              | 9    |
| 7.12 Overloads .....                                               | 9    |
| 7.13 Control switches and indication lights .....                  | 9    |
| 7.14 Wiring .....                                                  | 9    |
| 7.15 Feeder cable terminations .....                               | 10   |
| 7.16 Instrument and control power transformers .....               | 10   |
| 7.17 Space heaters .....                                           | 11   |
| 8. Performance requirements and tests .....                        | 12   |
| 8.6 Factory acceptance test .....                                  | 12   |
| 10. Documentation .....                                            | 13   |
| 10.1 General .....                                                 | 13   |
| 10.2 Schedule/Progress reports .....                               | 13   |
| 11. Shipping and handling .....                                    | 13   |



## Scope

This GIS provides guidance on industry standard for the design, materials, fabrication, inspection, testing, documentation, and preparation for shipment of NEMA class 1 low voltage motor controllers and motor control centers based on NEMA ICS 18-2001, *Motor Control Centers*. Numbering of the following sections and paragraphs corresponds to section and paragraph numbering of NEMA ICS 18-2001 and reflects additions, deletions, and revisions. Requirements of NEMA ICS 18-2001 that are not revised remain applicable.

### 1. General

#### 1.2 Referenced Standards

Add:

##### **National Fire Protection Association (NFPA)**

NFPA 70

National Electric Code (NEC)

##### **Underwriters Laboratories (UL)**

UL 1581

Reference Standard for Electrical Wires Cables and Flexible Cords

### 2. Definitions

Add:

*Single-front* – Vertical frame or structure with controllers mounted on front side only.

### 3. Classifications

#### 3.1 Classes and Types

Revise:

Motor control centers shall be provided as Class 1 assemblies. Assemblies may be supplied with standard or custom drawings. Motor control centers shall be factory wired as Type B

#### 3.2 Classes of Motor Control Centers

Revise first clause:

Motor control centers shall be provided as Class 1 assemblies. The user shall define the physical arrangement of units within the motor control center subject to the design parameters of the manufacturer.

#### 3.3 Circuit wiring

Add:

Standard wiring shall be Type B-T.

Wiring shall be 600 V insulated stranded copper.

Wiring shall be free of splices, except data communication wire may have splices at device pigtail.

CT circuit wiring shall be 600 V red insulated No. 12 AWG with compression ring tongue lugs.

Power wiring shall be rated equal to, or greater than, the maximum current rating of associated controller. This includes breaker line and load side wiring.

Wiring shall be flame tested in accordance with UL 1581.

#### **4. Characteristics and ratings**

##### **4.3 Continuous current ratings of buses**

Add:

Ground bus shall have a minimum continuous-current rating of 300 amperes

Add:

##### **4.5.1 Ratings of combination motor-control unit and feeder-tap units**

Add:

Standard rating shall be 65,000 rms symmetrical short circuit amperes, minimum.

##### **4.5.4 Rating of bus structure**

Add:

Standard rating shall be 65,000 rms symmetrical short circuit amperes, minimum.

#### **5. Product marking, installation and maintenance information**

##### **5.2 Handling, installation, operation and maintenance**

Add:

Materials and instructions for insulation of connections and terminations of bus shall be provided.

##### **5.2.2 Installation**

Enclosures shall allow mounting pad level variation of 1/8 inch in 3 feet without affecting alignment or operation of doors or mechanical interlocks.

##### **5.3 Marking and labeling**

##### **5.3.1 Units**

Add:

An engraved, white face, black core, lamicoid nameplate shall be standard for identification purposes.

Nameplates shall be mounted on cubicle front with stainless steel pins or screws

Nameplates for vertical section devices shall have letters 3/16 inch (4.76 mm) high, minimum, and show the following information:

- Line 1      Equipment number
- Line 2      Service identification
- Line 3      Rating (HP, Ampere, kVA, KW etc.).

*For transformers include secondary voltage rating.*

Control, secondary, and logic-level wires shall have a marker attached at each wire termination.

Wire markers shall be: