

DEP SPECIFICATION

**DESIGN AND FABRICATION OF LOW VOLTAGE MOTOR
CONTROL CENTRES FOR NORTH AMERICAN
APPLICATION
(AMENDMENTS TO UL 845 / CSA C22.2 NO. 254-05)**

DEP 33.66.05.39-Gen.

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ECCN EAR99

DESIGN AND ENGINEERING PRACTICE



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PART I INTRODUCTION

1.1 SCOPE

This new DEP specifies requirements and gives recommendations for the design and fabrication of low voltage motor control centres with a short circuit rating of not more than 200 kA and a rated voltage of not more than 600 V.

Part I and II include introductory and general information.

Part III is written as amendments and supplements to UL Standard 845-2005 / CSA Standard 22.2 No.254-05: Motor Control Centres. Unless modified by Part III, the requirements of UL 845 / CSA 22.2 No. 254-05 apply.

Part IV covers documentation requirements.

Part V covers supplemental non-technical requirements.

Part VI covers references associated with this standard.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by Shell GSI, the distribution of this DEP is confined to Shell companies and, where necessary, to Contractors and Manufacturers/Suppliers nominated by them. Any authorised access to DEPs does not for that reason constitute an authorisation to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in facilities related to oil and gas production, gas handling, oil refining, chemical processing, gasification, distribution and supply/marketing. This DEP may also be applied to other similar facilities.

When DEPs are applied, a Management of Change (MOC) process shall be implemented; this is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements could be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable with regard to the safety, environmental, economic and legal aspects. In all cases, the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned, the objective being to obtain agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

The **Contractor** is the party that carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or operation of a facility. The Principal may undertake all or part of the duties of the Contractor.

The **Manufacturer / Supplier** is the party that manufactures or supplies equipment and services to perform the duties specified by the Contractor.

The **Principal** is the party that initiates the project and ultimately pays for it. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

1.3.2 Specific definitions

See also (Part III; section 3: Definitions.)

Term	Definition
Observed	The word Observed means that the Principal and Contractor shall be notified of the timing of the inspection or test; however, the inspection or test shall be performed as scheduled, and if the Principal or the Contractor is not present, the Manufacturer/Supplier shall proceed to the next step.
Witnessed	The word Witnessed means that a hold shall be applied to the production schedule and that the inspection or test shall be carried out with the Principal or the Contractor in attendance.
Principal's Electrical Technical Authority	The Principal's Electrical Technical Authority is the discipline engineer appointed by the Principal and is responsible for all technical decisions associated with the work. The Principal's Electrical Technical Authority is responsible for technical integrity.

1.3.3 Abbreviations

Term	Definition
ACO	Accredited Certification Organization
ARMS	Arc Reduction Maintenance System
DEP	Design and Engineering Practice
MCC	Motor Control Centre
NRTL	Nationally Recognized Testing Laboratory
USCG	United States Coast Guard

1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section number is shown in brackets (). Other documents referenced by this DEP are listed in (Part VI).

1.5 COMMENTS ON THIS DEP

Comments on this DEP may be sent to the Administrator at standards@shell.com, using the DEP Feedback Form. The DEP Feedback Form can be found on the main page of "DEPs on the Web", available through the Global Technical Standards web portal <http://www.shell.com/standards> and on the main page of the DEPs DVD-ROM.

1.6 DUAL UNITS

This DEP contains both the International System (SI) units, as well as the corresponding US Customary (USC) units, which are given following the SI units in brackets. When agreed by the Principal, the indicated USC values/units may be used.

1.7 DATASHEETS

Use data sheet DEP 33.66.06.92-Gen. to specify low voltage motor control centres (LV MCCs).

The applicable data sheet sections shall be completed and returned by the Supplier/Manufacturer as part of the quotation.

PART II GENERAL REQUIREMENTS

1.1 GENERAL

Part III of this DEP is written as amendments, supplements and replaces various clauses / paragraphs of UL 845-2005 / CSA 22.2 No.254-05. Wherever reference is made to UL 845 / CSA 254-05, it shall be understood to mean UL 845 / CSA 254-05 as amended/supplemented by this DEP.

For ease of reference, the clause numbering of UL 845 / CSA 22.2 No.254-05 has been used throughout Part III of this DEP.

Clauses of UL 845 / CSA 254-05 that are not mentioned in this DEP shall remain applicable as written.

In the event of conflicts between and/or among documents, the Manufacturer/Supplier shall contact the Contractor for resolution.

1.2 STATEMENT OF COMPLIANCE

The Manufacturer/Supplier of the motor control centre (MCC) and its ancillary equipment shall confirm that the equipment fully complies with the quotation and the whole system is properly designed, constructed and suitable for the specified duty.

All performance values established in the pre-ordering meeting or quotation (whichever is the later) shall be regarded as maximum or minimum values as applicable.

These values shall also be guaranteed by the Manufacturer/Supplier under the most arduous conditions specified in this DEP and the requisition.

Tolerances shall be in accordance with this DEP and the relevant reference publications. All the equipment forming part of the order shall be tested individually and in combination at the Manufacturer/Supplier's works to prove their capability and compliance with the specification and the performance data.

The Manufacturer/Supplier shall comply with regulatory requirements applicable to the equipment for the location in which it will be installed.

Whenever equipment proposed by the Manufacturer/Supplier cannot fully meet the requirements of this DEP, such exceptions shall be clearly stated in Manufacturer/Supplier's proposal with cross-references to the specific sections and subsections to which exceptions are taken. No exceptions shall be allowed unless approved by the Principal's Electrical Technical Authority in writing.

If no exceptions are taken to these specifications or drawings, a specific statement to that effect shall be included.

If any one of the components or the whole system does not comply with the specification and any agreed amendments, the Manufacturer/Supplier shall rectify and re-test the MCC within a mutually agreed time.

1.3 PRE-ORDERING MEETING

If deemed necessary by one of the parties involved, a pre-ordering meeting shall be arranged to define clearly the overall scope of supply, individual responsibilities and test methods.

1.4 NOTIFICATION

The Contractor shall be notified 10 business days in advance of testing if the testing will be executed in the US/Canada, or notified 15 business days in advance of testing if the testing will be executed outside of the US/Canada.

**PART III REQUIREMENTS FOR LV MCCs
(AMENDMENTS/SUPPLEMENTS TO UL 845-2005 / CSA 22.2 No.254-05)****1. Scope****1.1 Products covered**

Add new clause:

- 1.1.5 This standard applies to motor control centres for use in indoor non-hazardous (non-classified) areas.

2. Normative references

Add new reference:

USCG Requirements, 46 CFR, Chapter 1, Subchapter J: Electrical Engineering, (For US offshore only).

3. Definitions

Add new clauses:

- 3.20 **arc resistant equipment** - equipment designed to withstand the effects of an internal arcing fault, as indicated by meeting test requirements of ANSI C37.20.7.
- 3.21 **internal arcing fault** - an unintentional discharge of electrical energy in air within the confines of an electrical equipment enclosure.
- 3.22 **arc resistant accessibility Type 2** - equipment with arc-resistant designs or features at the freely accessible exterior (front, back, and sides) of the equipment only. The equipment is arc resistant around the entire perimeter of the equipment.

5. Characteristics**5.1 General**

Add new clause:

- 5.1.3 LV MCCs and controllers shall be provided in accordance with the single line diagrams, standard motor control schematics and requirements as per the low voltage motor control centre data sheets. The complete assembly and its components shall be suitable for the specified continuous rated load current and available fault current.

The MCC shall be listed and /or certified by a NRTL for the US or ACO for Canada.

5.2 Voltage ratings

Add to this clause:

The control voltage shall be rated at 120 VAC.

5.3 Current**5.3.3 Vertical bus**

Add to this clause:

All vertical buses of a MCC shall be sized the same unless approved in writing by the Electrical Technical Authority.

5.4 Short-circuit**5.4.1 Standard short-circuit current ratings of motor control center units****5.4.1.2 Add to this clause:**

The interrupting rating of the protective devices in the MCC shall be at least equivalent to the maximum available fault current as specified on the data sheet.