



Document No.	GIS 12-205
Applicability	Group
Date	17 November 2003

Guidance on Industry Standard for Synchronous Motors (IEC)

GIS 12-205

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of Engineering Technical Practice (ETP) GIS 12-205. This Guidance on Industry Standard (GIS) is based on the following heritage documents from merged BP companies:

AMOCO (ACES)

A EL-MT-546-P Electrical—Motors—Synchronous—Supply Specification

ARCO (APCES)

ES 406-91 Form-Wound Brushless Synchronous Motors 500 Horsepower and Larger

BP (RPSE)

RP 12-11 Electrical Systems and Installations - Motors
GS 112-4 Guidance for Specification High Voltage Induction Motors

BP Chemical US

CP 17-3-3 Synchronous Motors

Copyright © 2003, BP Group. All rights reserved. The information contained in this document is subject to the terms and conditions of the agreement or contract under which the document was supplied to the recipient's organization. None of the information contained in this document shall be disclosed outside the recipient's own organization without the prior written permission of Manager, Standards, BP Group, unless the terms of such agreement or contract expressly allow.



Table of Contents

	Page
Foreword	2
1. Scope	5
2. Normative references.....	5
3. General.....	5
3.1. Documentation.....	5
3.2. Exceptions	5
3.3. Conflicts.....	6
3.4. Quality assurance	6
4. Standard design requirements	6
4.1. General.....	6
4.2. Certification for use in hazardous areas	7
5. Special design requirements.....	7
5.1. Duty and rating	7
5.2. Construction.....	7
5.3. Environmental protection	7
5.4. Windings and cable terminations	8
5.5. Bearings and lubrication.....	10
5.6. Critical speeds	11
5.7. Vibration	11
5.8. Plant identification.....	12
5.9. Mechanical handling	12
5.10. Painting.....	12
6. Noise	12
6.1. Noise emission	12
6.2. Noise reduction.....	12
7. Tests.....	13
7.1. Standard tests.....	13
7.2. Overspeed test	14
7.3. Heat run.....	14
7.4. Vibration	14
8. Documentation.....	14
8.1. Data sheet	14
8.2. Coil quality and interturn tests.....	14
8.3. Winding data.....	14
8.4. Test documentation	14
8.5. General arrangement drawing.....	14
Bibliography	15



Uncontrolled Copy



1. Scope

This GIS provides guidance on industry standard for the design, materials, fabrication, inspection, testing, documentation, and preparation for shipment of synchronous motors based on IEC standards.

2. Normative references

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

International Electrotechnical Commission (IEC)

IEC 60034-1	Rotating electrical machines – Part 1: Rating and performance.
IEC 60034-5	Rotating electrical machines – Part 5: Degrees of protection provided by the integral design enclosures of rotating electrical machines (IP code) – Classification.
IEC 60034-6	Rotating electrical machines – Part 6: Methods of cooling (IC code).
IEC 60034-7	Rotating electrical machines – Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code).
IEC 60034-14	Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heaths 56 mm and higher – Measurement, evaluation and limits of vibration.
IEC 60079	Electrical apparatus for explosive gas atmospheres – All Parts.

International Standards Organization (ISO)

ISO 281	Rolling bearings – Dynamic load ratings and rating life.
ISO 492	Rolling bearings—Radial bearings—Tolerances.
ISO 1940-1	Mechanical vibration—Balance quality requirements of rigid rotors—Part 1: Determination of permissible residual unbalance.

3. General

3.1. Documentation

A specification suitable for enquiry or purchasing can be derived from this section of the GIS by retaining the technical body unaltered but omitting the data page and all commentary.

This section of the GIS shall be read in conjunction with an enquiry or purchase order and all data sheets associated therewith.

The purchaser and vendor shall both complete the data sheets.

3.2. Exceptions

Tenders for the supply of equipment against this section of the GIS shall either include an unqualified affirmation regarding compliance with this section of the GIS or a complete list of exceptions.

