

GP 16-14-01	Standard LV Variable Frequency Drives	May 2004
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Standard LV Variable Frequency Drives

GP 16-14-01

Scope

- 1) [I] This Global Practice (GP) covers variable frequency drives (VFDs) made to a manufacturer's standard design. This type VFD is a complete, stand-alone converter equipment, fully specified in a printed catalog or data sheet which is current at the date of this Inquiry, and capable of speed and torque control of a three-phase squirrel-cage induction motor.
- 2) [I] Thermal capabilities, voltage, insulation, and all other design aspects of the VFD, motor, and cabling system shall be compatible.
- 3) [I] Standard VFDs are defined here as those rated <500 kW and ≤690V RMS AC and typically supplied directly from a low voltage bus, without transformer.
- 4) [I] An asterisk (*) indicates that a decision or approval by Purchaser is required or that additional information is to be furnished by Purchaser.
- 5) [I] The terms "variable frequency drive," "variable speed drive," "adjustable frequency drive," and "adjustable speed drive" are all interchangeable.

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GP 16-14-01	Standard LV Variable Frequency Drives	May 2004
-------------	---------------------------------------	----------

Table of Contents

1. Required References	3
1.1. Global Practices–ExxonMobil Engineering Practices	3
1.2. ExxonMobil Data Sheets.....	3
2. Additional Requirements	3
2.1. API–American Petroleum Institute	3
2.2. IEC–International Electrotechnical Commission	4
2.3. IEEE–Institute of Electrical and Electronics Engineers.....	5
3. Documentation.....	5
4. Construction Requirements	5
4.1. Mechanical.....	5
4.2. Electrical	5
4.3. Control	7
4.4. Labels	8
4.5. VFD By-pass Power Supply.....	8
5. Performance Requirements.....	8
5.1. General	8
5.2. Input Power Supply	8
5.3. VFD Power Output.....	9
5.4. Electromagnetic Compatibility (EMC), Harmonics	9
5.5. Protection.....	10
6. Alarms.....	10
7. Testing.....	11
Record of Change	11
Attachment: Purpose Codes Definitions	14

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Page 2 of 13	©ExxonMobil Development Company	 Documents Document Sharing Hub

GP 16-14-01	Standard LV Variable Frequency Drives	May 2004
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1. Required References

[I] This Section lists Practices that are generically referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.

1.1. Global Practices–ExxonMobil Engineering Practices

GP 15-07-02	Protective Systems
GP 16-09-01	Low Voltage AC Motors Up to 200 HP (150 kW)
GP 16-09-02	AC Motors: Medium Voltage and Low Voltage Over 200 HP (150 kW)
GP 16-12-01	Switchgear, Control Centers, and Bus Duct

1.2. ExxonMobil Data Sheets

ExxonMobil Data Sheets	ExxonMobil Data Sheet Homepage
T161401C03	Standard LV Variable Frequency Drives - Purchaser and Manufacturer Data - Customary/Metric Units

2. Additional Requirements

* [I] The following documents shall be used with this Practice as specified by Purchaser.

2.1. API–American Petroleum Institute

API STD 541	Form-Wound Squirrel Cage Induction Motors - 250 Horsepower and Larger
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Page 3 of 13	©ExxonMobil Development Company	



GP 16-14-01	Standard LV Variable Frequency Drives	May 2004
-------------	---------------------------------------	----------

2.2. IEC–International Electrotechnical Commission

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 of Rotating Electrical Machines (IP Code) - Classification
IEC 60034-12	Rotating Electrical Machines - Part 12: Starting Performance of Single-Speed Three-Phase Cage Induction Motors for Voltages up to and Including 660 V
IEC 60034-15	Rotating Electrical Machines Part 15: Impulse Voltage Withstand Levels of Rotating A.C. Machines with Form-Wound Stator Coils
IEC 60079-0	Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements
IEC 60079-2	Electrical Apparatus for Explosive Gas Atmospheres - Part 2: Pressurized Enclosures P
IEC 60079-7	Electrical Apparatus for Explosive Gas Atmospheres Part 7: Increased Safety E
IEC 60079-14	Electrical Apparatus for Explosive Gas Atmospheres - Part 14: Electrical Installations in Hazardous Areas (Other Than Mines)
IEC 60079-15	Electrical Apparatus for Explosive Gas Atmospheres - Part 15: Type of Protection N
IEC 60146-1-3	Semiconductor Convertors General Requirements and Line Commutated Convertors Part 1-3: Transformers and Reactors
IEC 60529	Degrees of Protection Provided by Enclosures (IP Code)
IEC 61000-4-3	Electromagnetic Compatibility (EMC) - Part 4-3: Testing and Measurement Techniques - Radiated, Radio-Frequency, Electromagnetic Field Immunity Test
IEC 61000-4-7	Electromagnetic Compatibility (EMC) Pt 4: Testing and Msmt Techniques Sec. 7: Gen. Guide on Harmonics and Interharmonics Msmts & Instrumentation, for Power Supply Systems
IEC 61800-2	Adjustable Speed Electrical Power Drive Systems - Part 2: General Requirements - Rating Specifications for Low Voltage Adjustable Frequency a.c. Power Drive Systems
IEC 61800-3	Adjustable Speed Electrical Power Drive Systems - Part 3: EMC Product Standard Including Specific Test Methods
IEC TR 60034-17	Rotating Electrical Machines - Part 17: Cage Induction Motors When Fed from Converters - Application Guide

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Page 4 of 13	©ExxonMobil Development Company	

