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Reciprocating Process Compressors

GP 10-04-01

Scope

- 1) [I] This Global Practice (GP) covers reciprocating process compressors. Reciprocating compressors for plant utility and instrument air are not covered by this GP.
- 2) All requirements specified in this GP are additions to those of API STD 618-4, 4th Edition, June 1995, unless specifically noted as exceptions. Paragraph numbers in this GP which do not appear in API STD 618-4 are new paragraphs.
- 3) [I] An asterisk (*) indicates that a decision by Purchaser is required or that additional information is furnished by Purchaser.
- 4) [I] A bullet (•) is shown in API STD 618-4 indicating that a Purchaser's decision is required.

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1. Required References

[I] This Section lists Practices and Standards 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 02-01-01	Plant Noise Design Criteria
GP 03-06-01	Piping for Instruments
GP 03-12-01	Valve Selection
GP 03-12-09	General Requirements for Valves
GP 03-16-01	Flanged Joints, Gaskets, and Bolting
GP 03-18-01	Piping Fabrication Shop or Field
GP 10-11-01	Sizing of Drivers and Transmissions for Compressors, Fans, and Pumps
GP 15-02-01	Temperature Instruments
GP 15-03-01	Pressure Instruments
GP 18-07-01	Welding Procedures
GP 18-12-01	Positive Material Identification
GP 20-01-01	Inspection of Equipment and Materials

1.2. API–American Petroleum Institute

API STD 618-4	Reciprocating Compressors for Petroleum, Chemical, and Gas Industry Services
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2. Additional Requirements

* The following Practices and Standards shall be used with this GP as specified by Purchaser.

2.1. Global Practices–ExxonMobil Engineering Practices

GP 03-03-05	Suction, Discharge, and Interstage Piping for Reciprocating Compressors
GP 03-03-06	Closed Cooling Water Systems for Internal Combustion Engines and Reciprocating Compressors
GP 06-01-01	TEMA Type Shell-and-Tube Heat Exchangers
GP 06-04-01	Air-Cooled Heat Exchangers
GP 10-07-01	General Purpose Steam Turbines

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GP 10-07-02	Special Purpose Steam Turbines
GP 10-10-01	Special Purpose Gear Units
GP 10-10-02	General Purpose Gear Units
GP 15-01-02	Instrumentation for Compressors and Drivers
GP 15-06-01	Electronic and Pneumatic Instruments
GP 15-07-01	Electric Power Branch Circuit Design for Instrumentation
GP 15-07-02	Protective Systems
GP 15-11-01	Instrument Control Panels
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 18-03-04	Pressure Casting Quality and Inspection
GP 18-10-01	Additional Requirements for Materials

2.2. API–American Petroleum Institute

API STD 661	Air-Cooled Heat Exchangers for General Refinery Services
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2.3. ASME–American Society of Mechanical Engineers

ASME B31.3	Process Piping
ASME SEC VIII D1	BPVC Section VIII - Rules for Construction of Pressure Vessels - Division 1

2.4. ASTM–American Society for Testing and Materials

ASTM B 111	Standard Specification for Copper and Copper-Alloy Seamless Condenser Tubes and Ferrule Stock
ASTM B 111M	Standard Specification for Copper and Copper-Alloy Seamless Condenser Tubes and Ferrule Stock (Metric)
ASTM B 151/B 151M	Standard Specification for Copper-Nickel-Zinc Alloy (Nickel Silver) and Copper-Nickel Rod and Bar
ASTM B 169/B 169M	Standard Specification for Aluminum Bronze Sheet, Strip, and Rolled Bar
ASTM B 169/B 169M	Standard Specification for Aluminum Bronze Sheet, Strip, and Rolled Bar
ASTM B 171/B 171M	Standard Specification for Copper-Alloy Plate and Sheet for Pressure Vessels, Condensers, and Heat Exchangers
ASTM B 466/B 466M	Standard Specification for Seamless Copper-Nickel Pipe and Tube
ASTM B 584	Standard Specification for Copper Alloy Sand Castings for General Applications

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3. Revisions to API Standard 618

All headings contained herein correspond to paragraph numbering within API STD 618-4 and reflect additions, substitutions, modifications, and deletions. All provisions not modified or deleted remain in force.

Modifications to Section 1: Scope

1.1. Exception: Scope

[I] This GP covers reciprocating compressors for process air or gas services.

1.1. Addition: Scope

- a) [I] Vendor Qualification. Major compressor and driver equipment shall be supplied by vendors qualified by experience in manufacturing the units proposed. To qualify, Vendor must have manufactured, at the proposed point of manufacture, 1) at least two compressors of comparable design, power rating, speed, and discharge pressure for a gas of comparable characteristics and 2) two drivers of comparable power rating and speed. This machinery must have been in continuous service for at least one year and must be performing satisfactorily. The gear vendor must meet the same experience requirements with gears of comparable power rating and speed ratio.
- b) [I] Where Vendor qualification requirements of Item a prevents the application of the latest technology, Vendor shall submit a second alternative proposal incorporating such features for evaluation by the Owner's Engineer. The proposal shall specifically identify the undemonstrated features and state their advantages.

Modifications to Section 2: Basic Design

2.1.2. Addition: General

[E] Noise: Compressor vendors shall submit noise emission data for the quoted machine with their proposal per [GP 02-01-01](#).

2.1.12. Addition: General

[O], [C] Compressor performance shall be guaranteed by Vendor for the specified normal operating point as shown on the data sheet. No negative tolerance is permitted on the normal capacity.

2.1.14. Addition: General

- a) [R], [M] Compressors and auxiliaries shall be suitable for outdoor installation.
- b) Compressors and auxiliaries shall be winterized for the climatic zone specified.

2.1.19. Addition: General

[R] The following spare parts shall be furnished for and delivered with each compressor unit:

- a) Set of valves for entire compressor

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