

**THE FOLLOWING PARAGRAPH NUMBERS REFER TO API-672, THIRD EDITION, SEPTEMBER 1996
WHICH IS A PART OF THIS PRACTICE**

SECTION 1 - GENERAL

- I 1.1 SCOPE
- a. (Exception) This practice covers packaged, integrally geared centrifugal air compressors designed for operation in utility and instrument air service.
 - b. All specifications in this practice are additions to those of **API-672** unless specifically noted as exceptions. Paragraph numbers in this practice which do not appear in **API-672** are new paragraphs.
 - c. **An asterisk (*)** indicates that a decision by the Purchaser is required or that additional information is furnished by the Purchaser.
Note: A bullet (•) is shown in **API-672** indicating that a Purchaser's decision is required.
 - d. **Vendor Qualification.** Centrifugal compressor packages shall be supplied by **vendors qualified by experience in manufacturing the units proposed**. To qualify, the vendor must have manufactured at the proposed point of manufacture, at least two air compressor packages of comparable speed, power rating, and discharge pressure, including the proposed control system. Each of these compressor packages must have been in service for at least one year and be performing satisfactorily.
 - e. Where the vendor qualification requirement of **Par. 1.1d** prevents the application of the latest technology, the vendor shall submit to the Purchaser a **second alternative proposal** incorporating such features for review and approval by the Owner's Engineer. The proposal shall specifically identify the undemonstrated features and state their advantages.
 - f. Centrifugal compressors manufactured under a license agreement shall carry the **licensor's written guarantee**.
- I 1.5 REFERENCED PUBLICATIONS
- a. **Table 1** lists the practices and standard which shall be used in this practice.
 - * b. **Table 2** lists the practices and standard which shall be used with this practice **as specified** by the Purchaser.

TABLE 1

PRACTICES	
IP 2-1-1	Plant Noise Design Criteria
IP 10-12-1	Vibration, Axial-Position, and Bearing-Temperature Monitoring Systems for Compressors and Drivers
IP 15-7-1	Electric Power Branch Circuit Design for Instrumentation
IP 15-7-2	Protective Systems
IP 18-12-1	Positive Material Identification
IP 20-1-1	Inspection of Equipment and Materials
STANDARD	
API Standard 672	Packaged, Integrally Geared Centrifugal Air Compressors for General Refinery Service

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TABLE 2

PRACTICES	
IP 3-9-1	Winterizing and Protection Against Ambient Temperatures
IP 10-7-1	General Purpose Steam Turbines
IP 10-10-2	General Purpose Gear Units
IP 15-11-1	Instrument Control Panels
IP 16-9-1	Low Voltage A-C Motors Up to 200 HP (150 kW)
IP 16-9-2	A-C Motors, Medium Voltage and Low Voltage Over 200 HP (150 kW)
IP 18-10-1	Additional Requirements for Materials
STANDARDS	
ASTM Standards	
B 111 / B 111M	Copper and Copper Alloy Seamless Condenser Tubes and Ferrule Stock
B 169 / B 169M	Aluminum Bronze Plate, Sheet, Strip, and Rolled Bar
B 171 / B 171M	Copper-Alloy Plate and Sheet for Pressure Vessels, Condensers and Heat Exchangers
B584	Copper Alloy Sand Castings for General Application

SECTION 2 - BASIC DESIGN

	2.1	GENERAL
E	2.1.4	SOUND PRESSURE LEVEL
	a.	Noise: Compressor vendors shall submit noise emission data for the quoted package with their proposal per IP 2-1-1 .
R,M	2.1.8	ENVIRONMENTAL CONDITIONS
	a.	The package shall be suitable for outdoor installation .
	b.	The package shall be winterized for the climatic zone specified, as per IP 3-9-1 .
O,R	2.1.16	SPARE PARTS
	a.	A complete set of spare rotors shall be furnished for and delivered with each centrifugal compressor. If the rotor sets of two or more machines should be duplicates, a single spare set will suffice.
	b.	When specified, a spare bearing and seal set shall be furnished for each compressor unit. If two or more proposed compressor units are duplicates, a single set of bearings and seals will suffice.
	2.2	INTEGRALLY GEARED COMPRESSOR
	2.2.6	SEALS AND SEALING SYSTEM
R	2.2.6.1	Shaft seals shall be labyrinth type .
	2.2.7	DYNAMICS
	2.2.7.2	LATERAL ANALYSIS
O,R	2.3.7.2.1	The vendors standard critical speed values that have been analytically derived and proven by testing of previously manufactured compressors of the same frame size are acceptable. Supporting evidence shall be submitted to the Purchaser for review by the Owner's Engineer. If no such evidence can be presented the vendor shall perform a damped unbalanced response analysis for the actual compressor-integral gear arrangement.
	2.2.7.3	TORSIONAL ANALYSIS
O,R	* 2.2.7.3.1	Unless otherwise specified, the vendor shall perform a torsional vibration analysis of the complete coupled train.
	2.2.7.4	VIBRATION AND BALANCING
O,R	2.2.7.4.3	Residual unbalance checks shall be performed and recorded.