PROCESS INDUSTRY PRACTICES

TECHNICAL REVISION
July 2019

Process Control

PIP PCERE001
Rotating Equipment Monitoring Guidelines

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

This Practice is subject to revision at any time.

PUBLISHING HISTORY

October 2007	*Issued*
September 2013	*Complete Revision*
July 2019	*Technical Revision*

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Table of Contents

1. Scope

This Practice provides guidance for the application of instrumentation to monitor rotating equipment for machinery protection, enhanced performance, and predictive maintenance.

This Practice describes the following:

a. Typical applications for continuous on-line monitoring of rotating equipment

b. Types of monitoring that could be provided and where they are typically applied

c. Installation considerations specific to type of monitoring equipment

d. General calibration and functional checkout considerations

e. Documentation recommendations

Types of rotating equipment covered in this Practice include centrifugal compressors, centrifugal pumps, gears, steam turbines, gas turbines, electric motors and generators, and other shaft driven equipment.

This Practice does not cover the design of anti-surge controllers, performance controllers, seal gas systems, and other equipment auxiliary systems. For information on surge detection and anti-surge control, refer to *API 670*.

2. References

Applicable parts of the following Practices and industry codes and standards shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

2.1 Process Industry Practices (PIP)

- PIP PCCGN002 - *General Instrument Installation Criteria*
- PIP PCSPS001 - *Packaged Equipment Instrumentation Specification*

2.2 Industry Codes and Standards

- American Petroleum Institute (API)
  - API 670 - *Machinery Protection Systems*

3. General

3.1 This Practice should be used in conjunction with *API 670*.

3.2 Condition Monitoring System (CMS) instrumentation is used to capture and display vibration waveforms for spectrum analysis in support of predictive maintenance and plant optimization. This Practice includes references to CMS procedures and technologies that, if implemented properly, can provide a lower total cost of ownership.

3.3 *PIP PCSPS001* should be referenced for general information on level, temperature, flow, and pressure instrumentation.