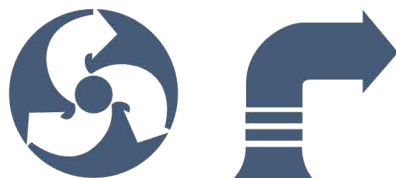




American National Standard for

Rotodynamic Pumps

for Nomenclature and Definitions



ANSI/HI 14.1-14.2-2019

American National Standard for
Rotodynamic Pumps
for Nomenclature and Definitions

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Foreword (Not part of Standard)

Purpose and aims of the Hydraulic Institute

The purpose and aims of the Hydraulic Institute (HI) are to promote the advancement of the pump manufacturing industry and further the interests of the public, and to this end, among other things:

- a) Develop and publish standards
- b) Address pump systems
- c) Expand knowledge and resources
- d) Educate the marketplace
- e) Advocate for the industry.

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An HI Guideline is not normative. The guideline is tutorial in nature to help the reader better understand the subject matter.

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Comments from users of this standard are appreciated to help HI prepare even more useful future editions. Questions arising from the content of this standard may be directed to the HI Technical Director. If appropriate, the inquiry is then directed to the appropriate technical committee for provision of a suitable answer.

Revisions

American National Standards of the Hydraulic Institute (ANSI/HI) are subject to constant review, and revisions are undertaken whenever it is found necessary because of new developments and progress in the art. If no revisions are made for 5 years, the standards are reaffirmed using the ANSI canvass procedure.

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Units of measurement

Metric units of measurement are used, and corresponding US customary units appear in parentheses. Charts, graphs, and sample calculations are also shown in both metric and US customary units. Because values given in metric units are not exact equivalents to values given in US customary units, it is important that the selected units of measure to be applied be stated in reference to this standard. If no such statement is provided, metric units shall govern.

Consensus

Consensus for this ANSI/HI Standard was achieved by use of the canvass method. The following organizations, recognized as having an interest in the standardization of pumps, were contacted prior to the approval of this revision of the standard. Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposed standard to ANSI.

4B Engineering
David McKinstry, Retired
DuPont
Fluid Sealing Association
GM BluePlan Engineering
JK Muir LLC
Kemet Inc.
Las Vegas Valley Water District
Outotec Canada Ltd.
Pentair, Berkeley

Pentair, Fairbanks Nijhuis
Riga Technical University
Rotating Equipment Repair
Sulzer
Syncrude Canada Ltd.
Taco Inc
Weir Floway, Inc.
Weir Minerals North America
Westinghouse Electric Co.
Xylem – Applied Water Systems

Committee list

Although this standard was processed and approved for submittal to ANSI by the canvass method, a working committee met many times to facilitate its development. At the time it was developed, the committee had the following members:

Co-Chair – Michael Mueller, Flowserve Corporation
Co-Chair – Albert Ticknor, III, P.E. , National Pump Company

Committee Members

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Jamie Watkins
Clint Zentic

Company

PSG, a Dover Company
Peerless Pump Company
Xylem Inc. – Applied Water Systems
Xylem Inc. – Applied Water Systems
Pentair – Berkeley
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Gorman-Rupp, Mansfield Division
Xylem Inc. – Applied Water Systems
TACO, Inc.
Franklin Electric Company, Inc.
Sundyne LLC
Crane Pumps & Systems, Inc.
SULZER

14 Rotodynamic pumps

14.1 Types and nomenclature

14.1.1 Introduction

Symbols are used throughout this standard to identify the pump. The convention is to define the term in text, followed by the HI symbol in parenthesis (xx) and, when different, the ISO symbol in brackets [xx].

ANSI/HI Standards for Nomenclature and Definitions have historically been subdivided into ANSI/HI 1.1-1.2 *Rotodynamic Centrifugal Pumps for Nomenclature and Definitions* and ANSI/HI 2.1-2.2 *Rotodynamic Vertical Pumps for Radial, Mixed and Axial Flow Types for Nomenclature and Definitions*. The demarcation between the two categories is determined by the arrangement of the hydraulic configuration (impeller, casing, bowl, or diffuser). However, in each case they have shared physical features and hydraulic functions that are better addressed together rather than separately. Every effort has been made to include and expand all the information contained in these previous standard into a single resource. The result is this single source of nomenclature and definitions information for the pump community.

The primary pump designations have been simplified and a suffix sub-classification has been created to provide greater refinement when needed. The majority of pump designations remained unchanged and in harmony with the API 610 standard. A cross reference table for the designations is below.

Table 14.1.1 – Rotodynamic pump type designations cross reference

1.1-1.2/2.1-2.2	14.1-14.2	1.1-1.2/2.1-2.2	14.1-14.2	1.1-1.2/2.1-2.2	14.1-14.2
OH00	OH0c	OH8B	OH8b	BB4	BB4
OH0	OH0	OH9	OH7i	BB5	BB5
OH1	OH1	OH10	OH5i	VS0	VS0
OH1A	OH1h	OH11	OH1i	VS1	VS1
OH2	OH2	OH12	OH7i	VS2	VS2
OH3	OH3	OM1	OH7j	VS3	VS3
OH3A	OH3g	OM2	OH1j	VS4	VS4
OH4	OH4	OM3	OH13j	VS5	VS5
OH5	OH5g	Pitot Tube	OH0d	VS6	VS6
OH6	OH6	BB1	BB1	VS7	VS7
OH7	OH7	BB2	BB2	VS7a	VS7j
OH8A	OH8	BB3	BB3	VS8	VS8

14.1.1.1 Purpose

This standard is a normative document for nomenclature and definitions for rotodynamic pump for various pumps configurations and services.

14.1.1.2 Scope

This standard is for types, nomenclature, and definitions of rotodynamic pumps with radial, mixed flow, and axial flow impellers, as well as regenerative turbine, Pitot tube, vertical diffuser, submersible motor deep-well and short-set pumps, commonly defined as vertically suspended rotor and vertical overhung impeller types (that may be driven by vertical electric motors or horizontal engines with right-angle gears) of all industrial/commercial types.