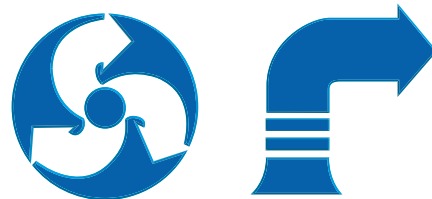


Hydraulic Institute Guideline for

Rotodynamic Pump Efficiency Prediction



This page intentionally blank.

Hydraulic Institute Guideline for Rotodynamic Pump Efficiency Prediction

Sponsor
Hydraulic Institute
www.Pumps.org

Approved by Hydraulic Institute
July 29, 2015

Hydraulic Institute Guideline

Approval of a Hydraulic Institute Guideline requires verification by the Hydraulic Institute that the requirements for due process and the criteria for approval have been met by the committee responsible for authoring the guideline.

Approval is established when, in the judgement of the Hydraulic Institute Standards Committee, substantial agreement has been reached by the authoring committee, HI Standards Voting Representatives, and by peer reviewers, where applicable. Substantial agreement signifies that much more than a simple majority was achieved, but does not necessarily indicate unanimity. Approval requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of Hydraulic Institute Guidelines is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the guidelines or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the guidelines.

CAUTION NOTICE: This Hydraulic Institute Guideline may be revised or withdrawn at any time. The procedures of the Hydraulic Institute require that action be taken periodically to reaffirm, revise, or withdraw this guideline. Purchasers of Hydraulic Institute Guidelines may obtain current information on all guidelines by calling or writing the Hydraulic Institute or by visiting the HI e-Store at <http://estore.Pumps.org>.

Published By

Hydraulic Institute
6 Campus Drive, First Floor North
Parsippany, NJ 07054-4406

www.Pumps.org

Copyright © 2015 Hydraulic Institute
All rights reserved.

No part of this publication may be reproduced in any form,
in an electronic retrieval system or otherwise, without prior
written permission of the publisher.

Printed in the United States of America

ISBN 978-1-935762-44-7



Recycled
paper

Contents

Page

Foreword	v
20.3 Rotodynamic pump efficiency prediction.	1
Appendix A Index	16
Figures	
20.3a — Optimum normally attainable efficiency chart (metric units)	6
20.3b — Efficiency reduction due to specific speed (metric units)	7
20.3c — Optimum normally attainable efficiency chart (US customary units)	8
20.3d — Efficiency reduction due to specific speed (US customary units)	9
20.3e — Deviation from normally attainable efficiency (metric units)	10
20.3f — Deviation from normally attainable efficiency (US customary units)	11
20.3g — Estimated efficiency increase due to improved surface finish (metric units)	12
20.3h — Estimated efficiency increase due to improved surface finish (US customary units)	13
20.3i — Estimated efficiency decrease due to increased wear ring clearance (metric units)	14
20.3j — Estimated efficiency decrease due to increased wear ring clearance (US customary units)	15
Tables	
20.3 — Pump types and factors that influence efficiency	5

This is a preview of "HI 20.3-2015". [Click here to purchase the full version from the ANSI store.](#)

Foreword (Not part of Guideline)

Purpose and aims of the Hydraulic Institute

The purpose and aims of the Institute are to promote the continued growth and well-being of pump users and manufacturers and further the interests of the public in such matters as are involved in manufacturing, engineering, distribution, safety, transportation, and other problems of the industry, and to this end, among other things:

- a) To develop and publish standards, guidelines, or educational materials on the application, installation, operation, and maintenance of pumps and pumping systems;
- b) To collect and disseminate information of value to its members and to the public;
- c) To appear for its members before governmental departments and agencies and other bodies in regard to matters affecting the industry;
- d) To increase the amount and to improve the quality of pump service to the public;
- e) To support educational and research activities;
- f) To promote the business interests of its members but not to engage in business of the kind ordinarily carried on for profit or to perform particular services for its members or individual persons as distinguished from activities to improve the business conditions and lawful interests of all of its members.

Purpose of Guidelines

- 1) Hydraulic Institute Guidelines are adopted in the public interest and are designed to help eliminate misunderstandings between the manufacturer, the purchaser, and/or the user and to assist the purchaser in selecting and obtaining the proper product for a particular need.
- 2) Use of Hydraulic Institute Guidelines is completely voluntary. Existence of Hydraulic Institute Guidelines does not in any respect preclude a member from manufacturing or selling products not conforming to the guidelines.

Definition of a Guideline of the Hydraulic Institute

An Institute Guideline consists of explanatory data and other engineering information of an informative character not falling within the classification of Institute Standards.

Comments from users

Comments from users of this guideline will be appreciated, to help the Hydraulic Institute prepare even more useful future editions. Questions arising from the content of this guideline may be directed to the Technical Director of the Hydraulic Institute. The inquiry will then be directed to the appropriate technical committee for provision of a suitable answer.

If a dispute arises regarding contents of an Institute Guideline or an answer provided by the Institute to a question such as indicated above, the point in question shall be sent in writing to the Technical Director of the Hydraulic Institute, who shall initiate the Appeals Process.

Moreover, only the Hydraulic Institute shall have the right or authority to issue an interpretation of a Hydraulic Institute Guideline in the name of the Hydraulic Institute. Requests for interpretations should be addressed to the Technical Director of the Hydraulic Institute.

Revisions

The Guidelines of the Hydraulic Institute 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 deemed necessary after five years, the guidelines shall be reaffirmed using the HI balloting procedure.