

## Contents

	Page
Foreword . . . . .	iv
20.3 Rotodynamic pump efficiency prediction. . . . .	1
20.3.1 Introduction . . . . .	1
20.3.1.1 Purpose. . . . .	1
20.3.1.2 Scope . . . . .	1
20.3.1.3 Preferred terms, units, and symbols . . . . .	1
20.3.2 Major factors which influence pump efficiency . . . . .	1
20.3.2.1 Types of pumps . . . . .	1
20.3.2.2 Specific speed. . . . .	2
20.3.2.3 Surface roughness . . . . .	2
20.3.2.4 Internal clearances . . . . .	3
20.3.3 Additional Factors . . . . .	3
20.3.4 Predicting generally attainable efficiency . . . . .	3
20.3.4.1 Generally attainable efficiency examples . . . . .	3
20.3.4.2 Procedure for determining generally attainable efficiency . . . . .	3
20.3.4.3 Examples . . . . .	5
Appendix A Mechanical losses. . . . .	12
Appendix B Impact of impeller trimming on pump efficiency . . . . .	14
Appendix C Index . . . . .	17
<b>Figures</b>	
20.3.4.2.1a — Chart for generally attainable efficiency at the BEP flow rate. . . . .	6
20.3.4.2.1b — Efficiency reduction due to specific speed . . . . .	7
20.3.4.2.1c — Estimated efficiency increase due to improved surface finish . . . . .	8
20.3.4.2.1d — Estimated efficiency decrease due to increased wearing ring clearance. . . . .	9
20.3.4.2.1e — Deviation from normally attainable efficiency . . . . .	10
B.1 — Vane overlap . . . . .	15
B.2 — Reduction of efficiency with impeller trimming, Case 1 . . . . .	15
B.3 — Reduction of efficiency with impeller trimming, Case 2 . . . . .	16
<b>Tables</b>	
20.3.4.2.1 — Pump types and factors that influence efficiency . . . . .	4