
Table of Contents

Section I

Industrial Combustion Basics.....	1
Chapter 1 Introduction.....	3
<i>Charles E. Baukal, Jr., Ph.D., P.E.</i>	
Chapter 2 Heat Transfer	41
<i>Charles E. Baukal, Jr., Ph.D., P.E.</i>	
Chapter 3 Fluid Flow	95
<i>Wes Bussman, Ph.D., Demetris Venizelos, Ph.D., and R. Robert Hayes</i>	
Chapter 4 Combustion Basics.....	125
<i>Joseph Colannino, P.E.</i>	
Chapter 5 CFD in Burner Development	145
<i>Joseph D. Smith, Michael Lorra, Ph.D., Eric M. Hixson, and Tom Eldredge, Ph.D.</i>	
Section II	
Burner Fundamentals.....	189
Chapter 6 Heat Transfer from Burners	191
<i>Charles E. Baukal, Jr., Ph.D., P.E.</i>	
Chapter 7 Burner Noise.....	245
<i>Mahmoud Fleifil, Ph.D., Jay Karan, and Wes Bussman, Ph.D.</i>	
Chapter 8 Combustion Controls.....	283
<i>Joe Gifford and Zachary Kodesh, P.E.</i>	
Chapter 9 Burner Testing	319
<i>Jeffrey Lewallen, P.E. and Charles E. Baukal, Jr., Ph.D., P.E.</i>	

Chapter 10 Burner Physical Modeling.....	355
<i>John P. Guarco and Tom Eldredge, Ph.D.</i>	
Section III	
Burner Designs	379
Chapter 11 High-Velocity Burners.....	381
<i>Tom Robertson, Todd A. Miller, and John Newby</i>	
Chapter 12 Regenerative Burners.....	413
<i>Russ Lang, Bruce B. Abe, Clive Lucas, and John Newby</i>	
Chapter 13 Thermal Radiation Burners	445
<i>Thomas M. Smith and Charles E. Baukal, Jr., Ph.D., P.E.</i>	
Chapter 14 Radiant Tube Burners.....	479
<i>Dennis E. Quinn and John Newby</i>	
Chapter 15 Radiant Wall Burners	501
<i>Demetris Venizelos, Ph.D., R. Robert Hayes, and Wes Bussman, Ph.D.</i>	
Chapter 16 Natural-Draft Burners.....	517
<i>Charles E. Baukal, Jr., Ph.D., P.E.</i>	
Chapter 17 Burners for Industrial Boilers	557
<i>Lev Tsirulnikov, Ph.D., John Guarco, and Timothy Webster</i>	
Chapter 18 Multi-Burner Boiler Applications	575
<i>Lev Tsirulnikov, Ph.D., John Guarco, and Timothy Webster</i>	
Chapter 19 Duct Burners.....	621
<i>Stephen L. Somers</i>	
Chapter 20 Air-Oxy/Fuel Burners.....	645
<i>Charles E. Baukal, Jr., Ph.D., P.E.</i>	
Chapter 21 Oxy-Fuel Burners	693
<i>Hisashi Kobayashi, Ph.D. and Rémi Tsiava, Ph.D.</i>	

Section IV	
Appendices.....	725
Appendix A Common Conversions	727
Appendix B Design Data	729
Appendix C Material Properties.....	751
Index.....	773