ISO 16812:2007-02 (E)

Petroleum, petrochemical and natural gas industries - Shell-and-tube heat exchangers

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms and definitions 2

4 General 3

5 Proposals 3

6 Drawings and other required data 4
6.1 Outline drawings and other supporting data 4
6.2 Information required after outline drawings are reviewed 5
6.3 Reports and records 6

7 Design 7
7.1 Design temperature 7
7.2 Cladding for corrosion allowance 7
7.3 Shell supports 7
7.4 Stationary head 8
7.5 Floating head 8
7.6 Tube bundle 9
7.7 Nozzles and other connections 12
7.8 Flanged external girth joints 13
7.9 Expansion joints 13
7.10 Gaskets 14
7.11 Handling devices 15
7.12 Hydrogen service 15

8 Materials 15
8.1 General 15
8.2 Gaskets 16
8.3 Tubes 16

9 Fabrication 16
9.1 Shells 16
9.2 Pass-partition plates 16
9.3 Connection junctions 16
9.4 Tubes 17
9.5 Welding 17
9.6 Heat treatment 17
9.7 Dimensional tolerances 18
9.8 Gasket contact surfaces other than nozzle-flange facings 18
9.9 Tube holes 19
9.10 Tube-to-tubesheet joints 19
9.11 Assembly 19

10 Inspection and testing 20
10.1 Quality assurance 20
10.2 Quality control 20
10.3 Pressure testing 21
10.4 Nameplates and stampings 22

11 Preparation for shipment 22
11.1 Protection 22
11.2 Identification 23

12 Supplemental requirements 23
12.1 General 23
12.2 Design 23
12.3 Examination 23

Annex A (informative) Recommended practices 25

Annex B (informative) Shell-and-tube heat exchanger checklist 27

Annex C (informative) Shell-and-tube heat exchanger data sheets 28

Annex D (informative) Responsibility data sheet 39

Bibliography 41