

DIN EN 13923:2006-02 (E)

Filament-wound FRP pressure vessels - Materials, design, manufacturing and testing

Contents	Page
Foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Symbols and abbreviated terms	7
5 General	8
6 Materials	8
6.1 General	8
6.2 Raw materials	8
6.3 Chemical resistance	9
6.4 Characteristics values for calculations	9
7 Design	11
7.1 General	11
7.2 The design factor	11
7.3 Permissible strain	13
7.4 Stress resultants	14
8 Design analysis method A	16
8.1 General	16
8.2 Calculations	16
8.3 Prototype testing	17
9 Design analysis method B	18
9.1 Calculation	18
10 Design documentation	20
11 Manufacturing	20
11.1 Filament winding	20
11.2 Protective layers	21
11.3 Manufacturing specifications	22
12 Final acceptance testing	22
12.1 General	22
12.2 Acceptance testing for filament wound vessels	22
12.3 Hydrostatic pressure test	23
12.4 Test report	24
Annex A (normative) Fabrication of flat filament wound test specimens	25
Annex B (informative) Laminate Theory	27
Annex C (normative) Extrapolation method for long term behaviour	34

Annex D (informative) Calculation example	37
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 97/23/EC	40
Bibliography	41