ISO/TS 23624:2021-05 (E)

Cranes - Safe use of high-performance fibre ropes in crane applications

Contents

Page

Foreword ..... **v**

Introduction ..... **vi**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 HPFR performance considerations **3**
4.1 Responsibilities 3
4.2 Risk assessment 3
4.3 Rope 4
4.3.1 Types of ropes 4
4.3.2 Selection of ropes 5
4.4 Proof of competence 7
4.5 Safety factor at discard for HPFR 7

5 Crane design considerations **8**
5.1 Termination on the drum 8
5.2 Termination at load side 9
5.3 Drum 9
5.3.1 Lowering limiter 9
5.3.2 Forces on flange and tube (Multilayer drum) 9
5.3.3 Shape of grooves on drums 10
5.3.4 Clearance between rope and diameter of drum flange 10
5.3.5 Temperature limits 10
5.4 Sheaves 10
5.4.1 Shape of grooves 10
5.4.2 Material of sheave 10
5.4.3 Minimum $\boldsymbol{D/d}$ ratio 10
5.5 Crane 11
5.5.1 Contact surfaces 11
5.5.2 Fleet angles 11
5.5.3 Substitution on existing design and optimization on new designs 11
5.5.4 Substitution on used cranes 11

6 Qualification testing of HPFR **11**
6.1 General 11
6.2 Basic data of HPFR 12
6.2.1 General 12
6.2.2 Minimum breaking strength, MBS 12
6.2.3 Residual breaking strength, RBS 12
6.2.4 Residual lifetime 12
6.3 Qualification testing 12
6.3.1 General 12
6.3.2 Bending fatigue performance 13
6.3.3 Multilayer spooling performance 13
6.3.4 Tension fatigue performance (rope and termination) 13
6.3.5 Termination performance (Static) 14
6.4 Interpolation of test results 14

7 Information to be provided regarding care, maintenance and inspection **14**
7.1 General 14
7.2 Installation of HPFR 14
7.2.1 Stationary ropes 14

7.3.2 Maintenance of rope-related parts of the crane 15
7.4 Inspection 15
7.5 Discard criteria 15
Annex A (normative) **Selection of ropes** **18**
Annex B (informative) **Qualification testing** **22**
Annex C (informative) **HPFR test report – Spreadsheet** **28**
Annex D (informative) **Example of discard** **38**
Bibliography **42**