



# FEDERATION EUROPEENNE DE LA MANUTENTION

## German National Committee

### List of FEM documents January 2011

The European Federation of Materials Handling "FEM" (Fédération Européenne de la Manutention), founded in 1953, comprises the national associations of the following European countries: Belgium, Finland, France, Germany, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom.

PEMA (Port Equipment Manufacturers Association) is an associate member.

FEM documents are divided into the following sections:

Section I:	Heavy lifting and handling equipment
Section II:	Continuous handling equipment
Section IV:	Industrial trucks
Section V:	Mobile cranes
Section IX:	Series lifting equipment
Section X:	Storage equipment and methods

FEM as an umbrella organisation and its sections have the following targets:

- encouraging technical progress and safety at work in the field of handling equipment
- harmonising of legislation and standardisation as well as acceptance testing at international and European levels in order to facilitate the exchange of goods across borders
- assisting and advising authorities responsible for questions concerning handling equipment at European level.

A large number of directives, design rules, terminologies and safety codes have been produced in recent years.

Many of the recommendations of FEM have been incorporated into national, European and international standards.

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The following FEM documents can be purchased from the VDMA online Publishing House (<http://fem.vdma-verlag.de/>). If not specifically indicated, all documents are available in English, French and German. Prices per pdf document. Free FEM documents can also be downloaded directly from the FEM website (<http://www.fem-eur.com/>).

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#### Section I - Heavy Lifting and Handling Equipment

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**FEM 1.001 (10.1998)**

Rules for the design of hoisting appliances, 8 booklets, € 144.59

**FEM 1.004 (07.2000)**

Recommendation for the calculation of wind loads on crane structures, € 44.48

**FEM 1.005 (11.2003)**

Recommendation for the calculation of tower cranes structures in out of service conditions, € 72.29

**FEM 1.007 (11.2003)**

Recommendation to maintain tower cranes in safe conditions, free download on the [PG web page](#)

#### Section II - Continuous Handling Equipment

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**FEM 2.111 (07.1978)**

Illustrated terminology; mechanical handling of bulk material, multilingual, € 21.13

**FEM 2.112 (08.1999)**

Continuous feeding of bulk materials, € 25.59

**FEM 2.121 (09.1999)**

Screw conveyors for bulk material - Recommendations for the design, € 13.35

**FEM 2.122 (01.1981)**

Recommendation for the calculation of throughput, power requirement and tensile forces in belts and chains of vertical bucket elevators, € 13.35

- FEM 2.123 (1989)  
Influence of the characteristics of bulk materials on the design of bucket elevators, € 21.13
- FEM 2.124 (1989)  
Influence of the characteristics of bulk material on the design of troughed belt conveyors, € 21.13
- FEM 2.125 (1989)  
Influence of the characteristics of bulk materials on the design of horizontal and slightly inclined screw conveyors (up to about 20°), € 21.13
- FEM 2.126 (1989)  
Influence of the characteristics of bulk materials on the design of en-masse conveyors/elevators, € 21.13
- FEM 2.127 (1989)  
Influence of the characteristics of bulk materials on the design of vibrating conveyors, € 21.13
- FEM 2.128 (1989)  
Influence of the characteristics of bulk materials on the design of bucket-wheel reclaimers, € 21.13
- FEM 2.131/2.132 (1997)  
Rules for the design of mobile equipment for continuous handling of bulk materials, € 127.90
- FEM 2.181 (1989)  
Specific characteristics of bulk materials as applicable when handled mechanically, € 21.13
- FEM 2.211 (07.1978)  
Illustrated terminology; mechanical handling of unit loads, multilingual, € 21.13
- FEM 2.271 (01.1981)  
Description of unit loads - Cardboard and millboard boxes, € 13.35
- FEM 2.272 (10.1982)  
Description of unit loads - Plastic boxes, € 13.35
- FEM 2.273 (1983)  
Description of unit loads - Flat pallets, € 13.35
- FEM 2.274 (1985)  
Description of unit loads - Paper, canvas and plastic bags, € 13.35
- FEM 2.275 (1985)  
Description of unit loads - Steel and plastic drums, € 13.35
- FEM 2.276 (1985)  
Description of unit loads - Luggage, € 13.35
- FEM 2.311 (03.1982)  
Storage of bulk material - Terminology, trilingual, € 13.35
- FEM 2.312 (10.1999)  
Discharge of bulk material from silos - Description and assessment of discharge systems, € 25.59
- FEM 2.321 (05.1989)  
Influence of the characteristics of bulk materials on the design and dimensioning of silos, € 21.13
- FEM 2.371 (11.1991)  
Definition of flow processes and troubles in the operation of storage silos, € 25.59
- FEM 2.381 (02.1986)  
Specific characteristics of bulk products as applicable to storage in silos -  
Determination and representation of flow characteristics, € 31.14
- FEM 2.411 (07.1978)  
Illustrated terminology; pneumatic handling of bulk material, multilingual, € 13.35
- FEM 2.412 (1981)  
Glossary of general terms used in pneumatic handling of loose bulk materials, trilingual, € 13.35
- FEM 2.421 (01.1992)  
Influence of the characteristics of bulk materials on the design of pneumatic handling systems, € 21.13
- FEM 2.461 (1983)  
Guarantee terms for pneumatic handling installations, € 5.56
- FEM 2.481 (1995)  
Specific characteristics of bulk products as applicable to pneumatic conveyors  
- Definition and determination of the methods of measurement, € 31.14

- FEM 2.482 (1999)**  
Test method to determine the content of fines and streamers in plastic pellets, € 27.80
- FEM 2.521 (07.1995)**  
Apron conveyors - Design principles, € 25.59
- FEM 2.551 (07.1995)**  
Pressure release of dust explosions, trilingual, free download on the [PG web page](#)
- FEM 2.561 (04.1994)**  
Questionnaire for the study of continuous bulk handling systems - Problems common to mechanical handling, pneumatic handling and silo storage, € 15.57
- FEM 2.562 (04.1994)**  
Questionnaire and check-list for the study of continuous bulk handling systems - Mechanical handling, € 15.57
- FEM 2.563 (04.1994)**  
Questionnaire and check-list for the study of continuous bulk handling systems - Pneumatic handling, € 15.57
- FEM 2.564 (04.1994)**  
Questionnaire and check-list for the study of continuous bulk handling systems - Silos, hoppers and bins, € 15.57
- FEM 2.581 / FEM 2.582 (11.1991)**  
General characteristics of bulk products with regard to their classification and their symbolization, € 25.59

#### **Section IV - Industrial Trucks**

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Due to a decision on 6 October 2000 and a further decision on 24 September 2006 in the Plenary Meeting of the FEM Product Group Industrial Trucks, many FEM documents have been withdrawn. The content of these FEM documents is identical with applicable EN and/or ISO standards. Please ask the Secretariat for an overview of the withdrawn FEM documents and the applicable EN or ISO standards.

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- FEM 4.003 (2001)**  
Information of the application of the EC regulation on the noise of fork lifts (German, English), free download on the [PG web page](#)
- FEM 4.004 (2004)**  
Periodic Inspection of Industrial Trucks, free download on the [PG web page](#)
- FEM 4.005 (2005)**  
Industrial Trucks – 90° stacking aisle width (German, English), free download on the [PG web page](#)
- FEM 4.006 (2005)**  
Exceptional use of work platforms with Industrial Trucks (German, English), free download on the [PG web page](#)

#### **Section V – Mobile Cranes**

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- FEM 5.004 (10.1994)**  
Rules for the design of the steel structures of general use, (only in English), € 7.78
- FEM 5.005 (06.1986)**  
Lorry loaders; Definition, terminology and configurations, (only in English), € 6.68
- FEM 5.006 (06.1986)**  
Lorry loaders; Controls, general principles, symbols, layout, operating directions, (only in English), € 7.78
- FEM 5.007 (06.1986)**  
Lorry loaders; Stability, calculation and test loading, (only in English), € 7.78
- FEM 5.008 (12.1987)**  
Stability - Lorry loaders used in timber handling, (only in English), € 7.78
- FEM 5.010 (10.1987)**  
Lorry loaders; Load plates, (only in English), € 3.33
- FEM 5.011 (10.1987)**  
Lorry loaders; Safety requirements for hydraulic systems, (only in English), € 4.45
- FEM 5.012 (05.1987)**  
Mobile cranes; Devices against overloading, (only in English and German), € 7.78

**FEM 5.013 (04.1987)**  
Mobile cranes; Wire ropes, drum and sheave diameters, (only in English and German), € 7.78

**FEM 5.015 (10.1990)**  
Lorry loaders; Classification, loads and load combination, (only in English), € 7.78

## **Section IX - Series Lifting Equipment and Storage and Retrieval Machines**

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### **Series lifting equipment:**

**FEM 9.341 (10.1983)**  
Rules for the design of series lifting equipment; Local girder stresses, € 5.56

**FEM 9.511 (06.1986)**  
Rules for the design of series lifting equipment; Classification of mechanisms, € 4.45

**FEM 9.661 (06.1986)**  
Rules for the design of series lifting equipment; Dimensions and design of rope reeving components, € 4.45

**FEM 9.671 (10.1988)**  
Rules for the design of series lifting equipment; Chain qualities, selection criteria and requirements, € 5.56

**FEM 9.683 (10.1995)**  
Selection of lifting and travel motors, € 12.23

**FEM 9.751 (05.1998)**  
Power driven series hoist mechanisms, Safety, € 22.24

**FEM 9.752 (07.2003)**  
Series hoists mechanisms with adjustable speed electrical power drive systems – Low voltage adjustable frequency AC power drive systems, € 27.80

**FEM 9.755 (06.1993)**  
Measure for achieving safe working periods for motorized serial hoist units (S.W.P.), € 13.35

**FEM 9.756 (08.2004)**  
Hand-operated and power driven hoists for special purposes € 53.38

**FEM 9.761 (01.1995)**  
Lifting force limiters for controlling the loading of motorized series hoist mechanisms, € 11.132

**FEM 9.852 (07.1998)**  
Power driven series hoist mechanisms; Standardised test procedure for verification of the classification, € 11.13

**FEM 9.901 (12.1991)**  
Rules for the design of series lifting equipment and cranes equipped with series lifting equipment, € 4.45

**FEM 9.941 (01.1995)**  
Series lifting equipment; Graphical symbols for control devices, € 6.68

### **Storage and retrieval machines:**

**FEM 9.001 (07.1997)**  
Terminology; Dictionary, storage and retrieval machines, (trilingual) free download on the [PG web page](#)

**FEM 9.101 (10.1997)**  
Terminology; Storage and retrieval machines - definitions, (trilingual), free download on the [PG web page](#)

**FEM 9.221 (10.1981)**  
Performance data of storage and retrieval machines, reliability, availability, free download on the [PG web page](#)

**FEM 9.222 (06.1989)**  
Rules for the acceptance and availability of installations with storage and retrieval machines and other equipment, free download on the [PG web page](#)

**FEM 9.223 (06.2003)**  
Basic data and criteria for the construction of automatic high bay warehouses with distribution systems, €15

**FEM 9.311 (02.1978)**  
Rules for the design of storage and retrieval machines; Structures, free download on the [PG web page](#)

**FEM 9.512 (07.1997)**  
Rules for the design of storage and retrieval machines; Mechanisms, free download on the [PG web page](#)

**FEM 9.754 (04.1988)**

**Safety rules for automatic miniload storage and retrieval machines**, free download on the [PG web page](#)

**FEM 9.831 (02.1995)**

**Calculation principles of storage and retrieval machines – Tolerances, deformations and clearances in the high-bay warehouse**, free download on the [PG web page](#)

**FEM 9.832 (08.2001)**

**Basis of calculations for storage and retrieval machines, tolerances, deformations and clearances in automatic small parts warehouses (not silo design)**, €15

**FEM 9.851 (06.2003)**

**Performance data of storage and retrieval machines; Cycle times**, €15

**FEM 9.871 (08.1997)**

**Logbook for storage and retrieval machines and transfer devices**, free download on the [PG web page](#)

**FEM 9.881 (02.2000)**

**Project planning data for selection of drives for storage and retrieval machines**, free download on the [PG web page](#)

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