FEDERATION EUROPEENNE DE LA MANUTENTION
Section IX
STORAGE AND RETRIEVAL MACHINES

FEM
9.871

Logbook for Storage and Retrieval Machines and Transfer Devices

08.1997 (E)
Original version:
German

Contents

Continued on pages 2 to 6

Available in German (D), English (E), French (F)
Sources of supply see back page

Foreword

This logbook for storage and retrieval machines and transfer devices was produced in a working group within the German national committee and adopted by the Technical Sub-Committee "Storage and Retrieval Machines, Stacker Cranes". Efforts were made to adapt the logbook to the requirements of the European Machinery Directive.

A logbook shall be permanently allocated to every individual storage and retrieval machine and to every transfer device.

1 Scope

The logbook applies to all types of machines restricted to the rails on which they travel within and outside of aisles which embody lifting means and may embody lateral handling facilities for the storage and retrieval of unit loads and for long goods such as bar materials and/or order picking or similar duties. Also included is the transfer equipment used to change betwenn aisles.. Control of the machines may range from manual to fully automatic..

2 Object

The purpose of this document is to provide manufacturers of storage and retrieval machines and transfer devices with a standard logbook which contains the most important data including tests, inspections and records therof for the machine in question.

The logbook may be adapted by each manufacturer to suit his special needs. However, the contents of this document should be included as minimum requirements.

One logbook shall be made for each storage and retrieval machine and for each transfer device. It must be filled in with the data related to that machine.

3 Abbreviations

For better understanding, the following abbreviations are used:

SRM:	Storage and retrieval machine
TD:	Transfer device
MD:	EC Machinery Directive

4 Terminology used in the logbook

The terms are listed in the order of their occurrence in the logbook. The definitions are listed to explain these terms. As the arrangement of the terms reflects the different form sheets in which they appear some of the terms are listed several times. This terminology relates to standard machines and should not be considered exhaustive.

1 Specification sheet for storage and retrieval machines/ transfer devices

Manufacturer	The Company responsible for the design and manufacture of the machine and the issue of the declaration of incorporation.
Model designation	Model designation designation specific to the manufacturer
Serial number	Number allocated to an individual machine as [definitive] [unequivocal] idenfication within the family of numbers used by that manufacturer
Year of construction	The year in which the machine was built.
Rated load	The weight of the maximum load that the load handling device may pick up during operation as intended, excluding the weight of any operator(s).

	For TD's: the mass of the complete SRM, with its rated load and including the operator, if applicable.
Type of SRM/TD	Singe or dual mast machine.
Structure classification	Classification of the supporting structure into lift categories (a function of lift speed) and stress groups (function of stress spectrum and frequency), e. g. FEM 9.311
Dead-weight (mass) of SRM	Mass of the complete SRM without rated load, test load and operator.
Dead-weight /mass) of Lifting carriage	Weight (mass) of the complete lifting carriage without rated load, test load and operator. The lifting carriage includes all components and assemblies which are moved vertically with the vertical movement of the SRM. Components and assemblies which only partially move with the lifting carriage, e.g. an energy supply chain, are included on a pro rata basis.
Mode of operation	• manual (requires an operator on the machine) • automatic (no operator required.) Model designation of operator's position classified by the extent of manual operation. • Emergency control position: Protected position from which the machine may be controlled during an emergency or for maintenance, • Driving position: A position on or off the machine from which the movements of the machine may be controlled. • Operator's position: Position on or off the machine comprising the driving position and the operator's work area. • on the lifting carriage (travelling vertically) • stationary on the SRM (not travelling vertically), or otherwise, e.g. in the aisle or in the access area.
Height of SRM	Vertical distance between the surface of the floor on which the travel rail is anchored to the bottom surface of the rack head carriage.
Height of a TD	the overall height taken from the floor surface.
Extension travel (reach)	the length of the path on which the load can be moved by the load holding device from its starting position at right angles to the aisle.
Wheelbase	distance between the axles of the two track wheels of the bottom carriage or travel unit.
Track width	distance from centre to centre of track rails (TD's)
Unobstructed aisle width	smallest width of the unobstructed section profile of the rack aisle, measured between unit loads, or, as the case may be, between rack struts.
Track rail profile	profile and, if applicable, the standard for the track rail
Operating voltage	nominal voltage in Volts and frequency in Hertz of the electric power supply system for machine operation.
Control voltage	nominal voltage in Volts and frequency in Hertz of the electric power supply system for control of the machine.
Total connected load	maximum apparent power drawn simultaneously from the power supply by several electric devices.

Units	drive modules for movements in one axis.
FEM 9.512 classification	classification of mechanism into groups composed of the daily operating time and the load spectrum, i.e. the cubic mean value of the relative payload.
Speed v	speed of linear movement that each mechanism achieves, in m/min v_x = horizontal speed v_y = vertical speed v_z = horizontal speed at right angles to the track rail.
Motors	
• Model	Model designation specifific to the manufacturer of the drive motor.
• Power P	rated electric power of the drive motor in kW
• Speed n	speed of the drive motor in RPM
• Duty cycle	projected duty cycle of the drive motor as a percentage. i.e. the relative running time of the motor during operation.
• Type of control	Control of mechanisms for travel, lifting, load handling device, e.g. 3-phase AC, with reversal of poles, 3-phase AC with frequency converter, DC, stepping motor, servomotor (electronically commutated synchronous drive)
• Type of brake	e.g. disk brake, multidisk brake, cone brake, drum brake.
Travel unit	Drive module for moving the entire machine in horizontal travel direction (x-direction, parallel to the track rail).
Hoist unit	Drive module for vertical movement of the entire lifting carriage (y-direction, vertical to the track rail).
Load handling device	module attached to the lifting carriage for picking up and releasing unit loads in relation to the lifting carriage (usually in z-direction, at right angles to the track rail).
Overspeed governor	device to trip the safety gear when the lifting carriage reaches a critical drop speed.
• Type tested	indication whether or not a type testing certificate from an independent test institute exists for the overspeed governor.
• Operating speed	rated lowering speed of the lifting carriage for which the overspeed governor has been designed.
• Tripping speed	lowering speed of the lifting carriage at which tripping of the overspeed governor takes place (usually 40 to 70% above operating speed).
Safety gear	device to decelerate and stop the lifting carriage on triggering of the overspeed governor.
• Type	braking method used, e.g. catching device or friction braking device.