

L.N. 413 of 2002

**THE METROLOGY ACT
ACT NO. XXV OF 2002**

Standard Mass of Grain Regulations, 2002

IN exercise of the powers conferred by article 19 of the Metrology Act, the Malta Standards Authority has made the following regulations:

1. (1) The title of these regulations is the Standard Mass of Grain Regulations, 2002. Citation and commencement.

(2) These regulations shall come into force on such date or dates as the Authority may by notice in the gazette appoint and different dates may be so appointed for different purposes and different provisions of these regulations.

2. (1) For the purposes of these regulations, all the definitions in Chapter 419 shall apply, and in addition, in these regulations, unless the context otherwise requires: Definitions.
Cap 419.

“EEC standard mass per storage volume” is the ratio of the mass expressed in kilogrammes to the volume expressed in hectolitres, as determined for any kind of grain by measurement with an instrument and according to a method which are in conformity with the provisions of these regulations.

“Member States” shall refer to the States which would be full members of the European Union at the time in which these regulations would enter into force.

“reference EEC standard mass per storage volume” is the EEC standard mass per storage volume as determined by measurement with a standard Community or national instrument constructed and used in accordance with Chapters I and II of Annex I.

(2) Where the reference EEC standard mass per storage volume is referred to, it shall be deemed to be expressed in kilogrammes per hectolitre to two decimal places.

3. These regulations shall apply to:

(i) the definition of the characteristic of grain designated "masse à l'hectolitre CEE", "EEG naturgewicht", "EWG-Schüttdichte", "peso ettolitrico CEE" (EEC standard mass per storage volume);

(ii) the requirements for the technical construction and utilisation of the reference standard instrument used to determine the EEC standard mass per storage volume;

(iii) the conditions which must be fulfilled by the working instruments used to measure the EEC standard mass per storage volume.

Standard
instruments

4. (1) The Community standard instrument shall be deposited with the Metrology Service of the Federal Republic of Germany. At least every ten years, national standard instruments shall, in conformity with Annex I, be checked against the Community standard instrument and adjusted accordingly by means of a transportable standard instrument of the same type.

(2) A transportable standard instrument is an instrument without a weighing device, but otherwise having exactly the same characteristics as the Community and national standard instruments.

Trading purposes.

5. (1) For trading purposes, the term EEC standard mass per storage volume may only be used to designate a grain characteristic which has been measured with instruments conforming to the requirements of these regulations.

(2) For the purposes of trade in grain between Malta and the Member States, the characteristic designated standard mass per storage volume may only be the EEC standard mass per storage volume which is defined above.

Instruments with
EEC marks etc.

6. (1) The measuring instruments used for trading purposes to determine the EEC standard mass per storage volume of grain shall fulfil the requirements of Annex II.

(2) Such instruments shall be subject to EEC pattern-approval and to EEC initial verification.

(3) Such instruments shall be constructed and used in accordance with the conditions specified in the EEC pattern-approval certificate and such instruments shall bear EEC marks and symbols.

(4) The entry into market or the entry into service of measuring instruments used to determine the EEC standard mass per storage volume may not be refused, prohibited or restricted where such instruments bear the EEC pattern-approval symbol and the EEC initial verification.

ANNEX 1

STANDARD INSTRUMENTS USED TO MEASURE THE EEC STANDARD MASS PER STORAGE VOLUME OF GRAIN

1. CONSTRUCTION REQUIREMENTS

1. Standard instruments consist of a capacity measure, a filling device, a scraper device, a weighing device and a filling container.

All parts of the instruments shall be constructed soundly and carefully; all surfaces coming into contact with the grain shall be smooth and made of a virtually stable metal, e.g. brass, stainless steel, sufficiently thick to keep its shape during normal use.

2. Capacity measure

- 2.1. The capacity measure is in the form of an upright, circular cylinder; its upper edge is ground flat along a plane perpendicular to its axis.
- 2.2. During the filling operation the capacity measure is always in the same position under the filling device.
- 2.3. Above the capacity measure, when in the filling position, a filling ring is affixed which is mounted along the same axis and has the same internal diameter as the capacity measure, the scraper blade moves with a slight clearance between these two components.

3. Filling device

- 3.1. The filling device consists of a filling hopper equipped with a closing device and a regulating device.
- 3.2. The filling hopper is in the form of a truncated cone to which is attached an upper cylindrical part and a lower tapered discharge nozzle equipped with a closing device.
- 3.3. The filling hopper is fixed in such a way that in the filling position its axis is vertical and coincides with that of the capacity measure.
- 3.4. The regulating device has a closely specified profile. It projects downwards into the lower discharge nozzle and its position is adjustable in the vertical direction. Its axis coincides with that of the filling hopper.

4. Scraper device

- 4.1. The scraper device consists of a scraper blade, a guide and a traction device.
- 4.2. The scraper blade is flat, horizontal and keeps its shape during use.
- 4.3. The guide constrains the scraper blade to move between the lower rim of the filling ring and the upper rim of the capacity measure.
- 4.4. The traction device sets the scraper blade in continuous movement through the grain.
- 4.5. After filling and weighing the capacity measure, the excess grain on the scraper blade in the filling ring is collected in a container.

5. Weighing device

- 5.1. The capacity measure, filled with grain, is weighed on an equal arm balance of 50 kg capacity.
- 5.2. The mass of the weights platform of the balance balances the empty capacity measure.

6. General assembly

- 6.1. The various parts of the instrument, apart from the capacity measure and the balance, are fixed on a frame in such a way that the upper rim of the capacity measure, in the filling position, is horizontal.
- 6.2. The frame of the instrument is equipped with a plumb line at least 500 mm long, or with a spirit level. These devices must be between the reference marks when the upper rim of the capacity measure, in the filling position, is horizontal.

7. Dimensions of the various components

Capacity Measure

Internal Diameter	295 mm $\pm$ 1 mm
Volume	20 L $\pm$ 0.01 L
Distance between the inside bottom face of the measure and the bottom edge of the lower tapered discharge nozzle of the filling hopper	500 mm $\pm$ 2 mm
Distance between the scraper blade and the rim of the capacity measure	0.5 mm $\pm$ 0.2 mm

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Filling cone

Internal diameter 295 mm $\pm$ 1 mm

Filling hopper

Length of axis of the upper cylindrical part 120 mm $\pm$ 2 mm

Length of axis of the conical part 240 mm $\pm$ 1 mm

Length of axis of the lower tapered discharge nozzle 80 mm $\pm$ 0.5 mm

Total length of axis of the hopper 440 mm $\pm$ 3 mm

Internal diameter of the upper cylindrical part 390 mm $\pm$ 1 mm

Internal diameter of the tapered discharge nozzle at the top (g') 84.5 mm $\pm$ 0.5 mm

Internal diameter of the tapered discharge nozzle at the bottom (g'') 86.5 mm $\pm$ 0.5 mm

Difference g'' - g' 2 mm $\pm$ 0.5 mm

Regulating device

Diameter of the rod 11 mm $\pm$ 0.2 mm

Radius of the throat 16 mm $\pm$ 0.5 mm

Height of the cylindrical part 5 mm $\pm$ 0.5 mm

Diameter of the cylindrical part 33 mm $\pm$ 0.2 mm

Scraper device

Mass of the traction weight 5 kg $\pm$ 0.1 kg

Filling container

Volume up to the rim

24 l ± 0.1 l

8. Figure

The standard instrument is shown in the attached diagram

II. OPERATING INSTRUCTIONS

The grain to be measured shall be free of impurities and at approximately ambient temperature. It shall be air-dried, i.e. in hygroscopic equilibrium with the ambient air. For this purpose it is spread out in a thin layer and left undisturbed for about ten hours before being transferred. The relative humidity of the ambient air shall not exceed 60 %.

The standard mass per storage volume depends on the quantity of grain used and the way it is transferred to the filling hopper. For this reason, the following procedure should be followed:

Place capacity measure 1 (see attached diagram) in the filling position so that its axis coincides with that of the filling ring 2 and the filling hopper 3, and move the lever 15 so as to lock the said measure in this position by the locking rod 16. Move the scraper blade 9 to its starting position and lock it in position with the lever 12. Use the foot screws 19 to adjust the frame 20, so that the upper rim of the capacity measure 1 is in a horizontal plane during filling.

24 litres of grain are now put into the filling container (not shown in the diagram) and tipped into the filling hopper 3 after it has been checked that the closing device 4 of the tapered discharge nozzle 8 is in the closed position. Then draw the bolt 5 to open the closing device 4 (which is then held open by the catch 6), and let the grain flow into the capacity measure 1 standing on the carriage 14. This flow is protected against external influences by the collar 2a. The support 14a prevents deformation of the rails along which the rollers of the carriage 14 travel.

The excess grain (approximately 4 litres) that has been fed into the hopper 3 in order to ensure even filling of the capacity measure 1 is retained in the filling ring 2 after the measure is completely filled. To separate this excess from the contents of the capacity measure 1, open the bolt 12 which pivots on a spindle fixed on the crosspiece 11, in order to release the scraper blade 9. The front edge of the scraper blade 9, which is actuated by the traction weight 13, is sufficiently sharp to cut off any grains on the rim of the capacity measure 1 which might prevent regular scraping. When the scraper blade 9 reaches its final position, use the lever 15 to withdraw the capacity measure 1 standing on the carriage 14, remove the measure from this carriage, place it on the scales and weigh its contents to within ± 5 g.

Pull back the scraper blade 9 to its starting position, so that the excess grain lying on this blade falls into the container 17; any stray grains are guided into the container by the

jacket 18. After releasing the catch 6 by turning the handwheel 4a, shut the closing device 4.

If another measurement has to be made on the same sample, the grain from the capacity measure should be thoroughly mixed with that from the container.

To obtain the standard mass per storage volume in kg/hl, divide by 0.2 hl the value N indicated by the weighing device.

III. CHECKING AND ADJUSTING

1. Dimensions and volumes

The dimensions and volumes given under item 1.7 are checked with instruments of suitable accuracy.

2. Checking of functioning

National standard instruments shall be checked against the Community standard instrument and adjusted accordingly by means of a transportable standard instrument.

2.1. For the purposes of this check pure Manitoba wheat whose grains are approximately spherical is used. It shall have a standard mass per storage volume of not less than 80 kg/hl and shall be in hygroscopic equilibrium with the ambient air. Six measuring operations are made in accordance with the instructions of item II. If P denotes the standard instrument to be checked and N the EEC standard instrument, the measurements are made as follows:

Comparison No	1	2	3	4	5	6
	NP	PN	NP	PN	NP	PN

2.1.1. The differences between the separate values given by P and their mean value may not exceed ± 10 g.

2.1.2. The error of the instrument is the difference between the mean value of the six readings given by P and the mean value of the six readings given by N. The maximum permissible error is ± 10 g.

2.1.3. If the maximum permissible errors specified in items 2.1.1 or 2.1.2 are exceeded, this may be because the grain is still not sufficiently homogeneous; it must therefore be left spread out for about another ten hours in the measuring place, after which the check described in item 2.1 is repeated.

2.1.4. If only the maximum permissible error specified in item 2.1.2 is exceeded, the instrument must be adjusted.

The readings provided by the instrument can be altered by moving the regulation device 7 to a higher or lower position.

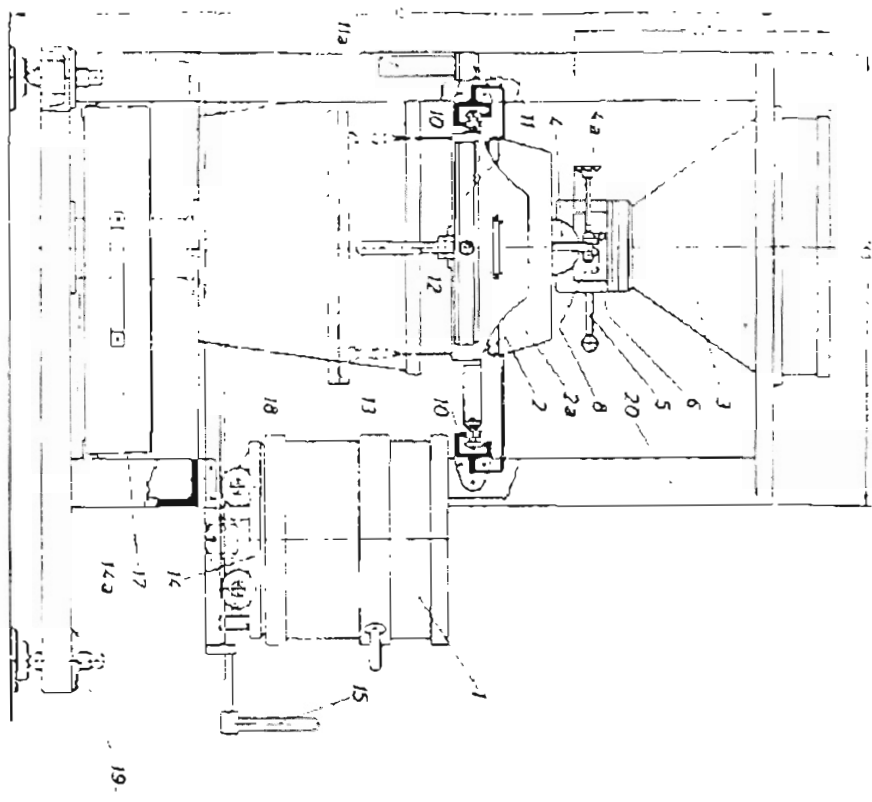
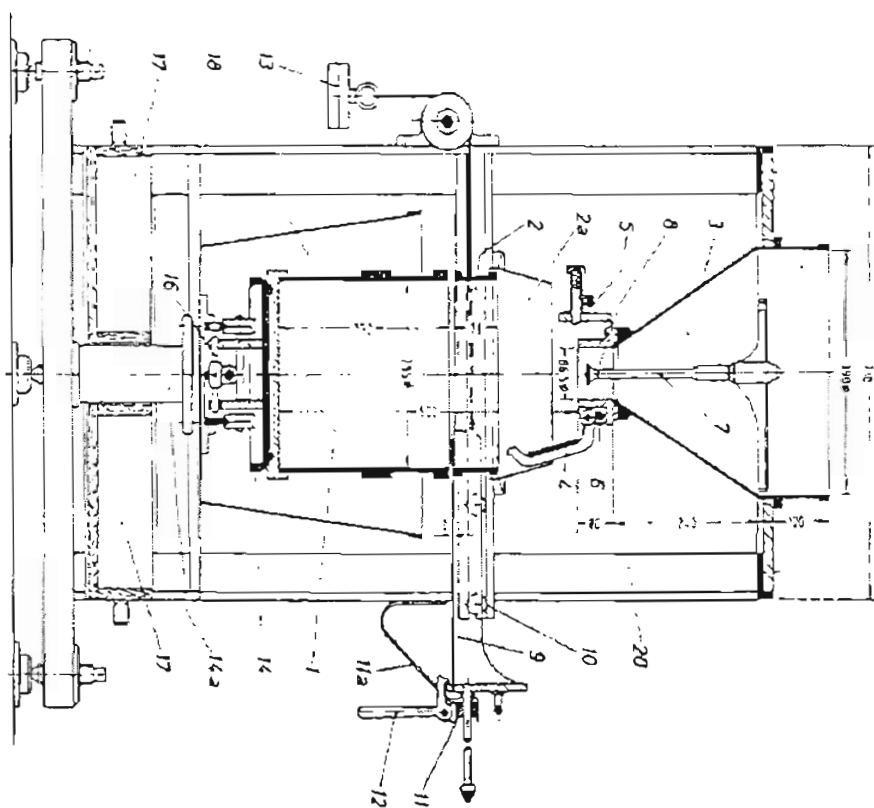
The regulating device 7 is moved and the check described in item 2.1 is repeated

3. Weighing device

- 3.1. For loads between 10 and 20 kg, the error of the balance must not exceed ± 0.01 % of the load.
- 3.2. The sum of the errors in the weights used must not exceed ± 0.02 % of their nominal mass.

Legend on attached drawing

- 1. Capacity Measure
- 2. Filling ring and Collar 2a
- 3. Filling hopper
- 4. Closing device and handwheel 4a
- 5. Bolt for closing device
- 6. Catch for closing device
- 7. Regulating device
- 8. Tapered discharge nozzle
- 9. Scraper blade
- 10. Scraper blade guide
- 11. Crosspiece and support 11a
- 12. Bolt for scraper blade
- 13. Traction weight
- 14. Carriage and support for rails 14a
- 15. Lever for carriage
- 16. Locking rod
- 17. Container
- 18. Jacket
- 19. Foot screws
- 20. Frame



ANNEX II**MEASURING INSTRUMENTS USED TO DETERMINE THE EEC STANDARD
MASS PER STORAGE VOLUME OF GRAIN**

1. The measuring instruments used to determine the EEC standard mass per storage volume of grain have the following characteristics:
 - (a) they are designed and manufactured so as to ensure satisfactory repeatability and reproducibility of measurements;
 - (b) the maximum permissible error of the standard mass per storage volume is plus or minus five-thousandths of the result given by a standard instrument;
 - (c) the maximum permissible relative error on the capacity of the container used is plus or minus two-thousandths;
 - (d) the maximum permissible relative error of the weighing instrument for the quantity weighed is plus or minus one-thousandth;
 - (e) the difference between each result obtained for a specific grain and the mean value of the standard mass per storage volume as determined from six consecutive measurements is not more than plus or minus three-thousandths of such mean value.
2. Each instrument has a clearly visible inscription plate bearing in legible and indelible letters the following information:
 - (a) the EEC pattern approval symbol;
 - (b) the identification mark or name of the manufacturer;
 - (c) the manufacturer's description, if any;
 - (d) an identification number and the year of manufacture;
 - (e) the nominal capacity of the capacity measure and either the operating instructions or a reference to the operating instructions.