Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/4C/244

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Mettler Toledo Model BBK462-6 XS Weighing Instrument

submitted by Mettler Toledo Limited
Unit 3, 220 Turner Street
Port Melbourne VIC 3207

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated July 2004.

This approval becomes subject to review on **1/01/17**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 & 2 approved – certificate issued	12/12/06
1	Pattern & variants 1 & 2 amended – notification of change	13/07/09
2	Pattern & variants 1 & 2 reviewed & updated – certificate issued	10/05/12

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number ‘NMI 6/4C/244’ and only by persons authorised by the submittor.

It is the submittor’s responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates No S1/0/A or No S1/0B.

Signed by a person authorised by the Chief Metrologist to exercise his powers under Regulation 60 of the *National Measurement Regulations 1999*.

TECHNICAL SCHEDULE No 6/4C/244

1. Description of Pattern approved on 12/12/06

A Mettler Toledo model BBK462-6 XS self-indicating single interval non-automatic weighing instrument of high accuracy class (II) of 6100 g maximum capacity (Figure 1 and Table 1).

Instruments are fitted with a 'MonoBloc' weighing unit (with integral load cell and internal calibration mass) and have a dot matrix display including provision for display of the weight value, gross, net and tare, and for alphanumeric information/menus. Instruments may have an auxiliary indicating device (a differentiated scale interval (digit) which is shown in a smaller size (Figure 1) in the display) with a value as shown in the 'scale interval (*d*)' column of Table 1.

Note: It is possible for the instrument to be configured with a facility whereby the display temporarily indicates (for approximately 5 seconds) with a scale interval less than the normal scale interval. Use of this facility is not approved and shall not be enabled where the instrument has an auxiliary indicating device.

The pattern has a 165 × 165 mm square platter.

The instrument is approved for use over a temperature range of +10°C to +30°C, and is so marked.

Power supply may be either:

- supplied by an AC/DC mains adaptor. Note: The AC/DC mains adaptor supplied was a uniV Power model SA-180A6F-S (18 V DC, 0.6 A);
- other DC power source (12 to 24 V), this may include batteries (rechargeable or otherwise) or an external DC power supply.

Note: The submittor should be consulted regarding the acceptability of alternative power supplies.

Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices.

1.1 Zero

Zero may be automatically corrected to within ±0.25*e* whenever the instrument comes to rest within 0.5*e* of zero or whenever power is applied (in the case of multiple range configurations (see variant 1), *e* in this sentence refers to e_1). This feature may, or may not, be enabled.

If the instrument comes to rest outside that range but within the zero setting range, zero may be set by pressing the zero button.

The instrument has a semi-automatic zero-setting device (to set the instrument to within ±0.25*e* of zero) with a nominal range of not more than 4% of the maximum capacity of the instrument.

The instrument has an initial zero-setting device with a nominal range of not more than 20% of the maximum capacity of the instrument.

1.2 Tare

The instrument has provision for subtractive semi-automatic and pre-set tare devices of up to maximum capacity (except for instruments configured as multiple range instruments (see variant 1), in which case the maximum pre-set tare value is Max_1).

The values of gross, net and tare are displayed simultaneously in a smaller format to the main mass display (unless 'Big Dis' display function activated, in which case the net value only is displayed). Pre-set tare values may be stored and recalled, and may be associated with product or item look-up tables.

1.3 Display Check

A display check is initiated whenever power is applied. Software identification information is displayed during the start-up.

1.4 Levelling

Instruments are provided with adjustable feet and adjacent to level indicator is a notice stating 'Instrument must be level when in use', or similar wording.

1.5 Data Storage Memory

The indicator may contain memory for the storage of weighing results. For each weighing, weighing results together with identification including date and time are stored into the storage device.

The use of this feature for trade use is subject to the agreement of the applicable trade measurement authority.

In any case, data from the storage device shall only be used for trade if the format of the output complies with General Supplementary Certificates No S1/0/A or No S1/0B.

1.6 Interfaces

The indicator may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. Any interfaces shall comply with clause 5.3.6 of document NMI R76 (the basic intent of which is that it shall not be possible to alter weighing results via the interfaces).

Any measurement data output from the instrument or its interfaces shall only be used for trade in compliance with General Supplementary Certificates No S1/0/A or No S1/0B (in particular in regard to the data and its format).

Indications other than the indications of measured mass (i.e. gross, tare, net, totals) displayed either on the indicator or on an auxiliary or peripheral device, are not for trade use.

Data derived from any analogue output or interface shall not be used for trade use.

Interfaces of the following types may be fitted:

- serial data interfaces: RS232, RS485, PS/2, USB, ethernet
- analogue output
- digital I/O

1.7 Additional Features

The instrument may incorporate additional software packages intended by the manufacturer for particular applications.

Such software may include facilities such as setting of set-points and target values, implementation of ‘under/accept/over’ checking, counting and ‘percentage’ display, databases of product information, analysis of weighing results, programming of sequences of operations, etc.

In addition the instrument may have facilities for a number of dialogue (menu access) and function keys to be programmed to perform various functions. Any use of this feature shall be implemented so as not to cause confusion with the normal weighing results.

However this approval relates only to use for trade of the instrument as a non-automatic weighing instrument, in which static weighing (gross or net) of product on the weighing platform is carried out.

In particular, **the approval does not extend to, nor provide any endorsement by the National Measurement Institute, of the additional software or functionality.** The additional functions (other than the indications of measured mass – i.e. gross, tare, net – displayed either on the indicator or on an auxiliary or peripheral device) are not approved for trade use.

Notes: The use of the abovementioned features may or may not be appropriate in different situations. The acceptability in any particular situation must be assessed in-situ and may require consultation with the appropriate trade measurement authority. In some situations it may be necessary for a print-out of the weighing result to be produced for the method of operation to be considered acceptable. In such situations General Supplementary Certificates No S1/0/A or No S1/0B should be consulted.

1.8 Internal Calibration System

Instruments may be fitted with an automatic or semi-automatic ‘internal calibration’ system. This comprises an internal calibration mass that may be applied to the instrument in an automatic adjustment cycle that is initiated manually by the operator (or ‘supervisor’), or automatically on the basis of time periods and/or temperature changes.

Sealing of the instrument does not prevent operation of the internal calibration system. However the instrument uses data regarding the value of the internal mass, and alteration of that data, together with other significant parameters is restricted.

1.9 Verification Provision

Provision is made for the application of a verification mark.

1.10 Sealing Provision

Sealing of the internal components and calibration switch is achieved by applying a destructible adhesive label over one of the retaining screws holding the base cover (underneath the instrument) to the instrument, typically as shown in Figure 2.

1.11 Descriptive Markings and Notices

Instruments carry the following markings, together in one location, in the form shown at right:

Manufacturer's mark, or name written in full	Mettler Toledo Limited
Indication of accuracy class	(II) (or (III) , see variant 1)
Pattern approval mark for the instrument	NMI 6/4C/244
Maximum capacity	*Max* ..... g or kg #1
Minimum capacity	*Min* ..... g or kg #1
Verification scale interval	*e* = ... g or kg #1
Actual scale interval	*d* = ... g or kg #2
Tare capacity (if less then *Max)*	*T* = - ..... g or kg
Serial number of the instrument	.....
Special temperature limits	.....°C / .....°C

#1 These markings are also shown near the display of the result if they are not already located there.

#2 Marking not required for class (III) instruments (see variant 1).

Instruments are not for trading direct with the public, and are so marked.

2. Description of Variant 1 approved on 12/12/06

Certain other models of the BBK series non-automatic weighing instruments as listed in Table 1 and Table 2. These models are similar to the pattern but may have different characteristics as described below.

(i) The instruments are available in various versions, namely the BBK422 (basic functions only – Figure 3a), BBK432 (includes counting – Figure 3b) and BBK442 (additional counting functions – Figure 4). These versions are similar to the pattern but have reduced features/functions including fewer interfaces, and also may have a reduced set of operational keys, and differing display.

(ii) Various capacities of instruments are available, and may have differing platter sizes. A suffix to the model number indicates the nominal capacity in kilograms, and also indicates the platform size, e.g. the model BBK462-6 XS is of 6 kg nominal capacity with an 'XS' platter which is 165 × 165 mm. Refer to Table 1 and Table 2 for the actual instrument capacities and other platter sizes.

(iii) Some instruments may have a 'Dual Range' feature whereby they only have a differentiated actual scale interval (*d*) for part of their range. (the limit of the 'Dual Range' for these instruments is shown in the Tables as 'Max DR'). These models include 'D' in the model suffix.

(iv) Some models may be of medium accuracy class (III) and are so marked. These instruments are multi-interval instruments with configurations as shown in Table 2 (the partial weighing range in use may be indicated, e.g. '|↔|1'). For such instruments, the auxiliary indicating device (differentiated scale division) described for the pattern is not provided. These instruments are approved for use over a temperature range of +5°C to +35°C, and are so marked.

For multi-interval instruments the markings shall be as specified in clause **1.11 Descriptive Markings and Notices**, with the exception that the maximum capacity and verification scale interval for each partial range shall be marked.

3. Description of Variant 2 approved on 12/12/06

Instruments may be connected with an additional (external) basework, in which case instruments are marked 'NMI S480' in addition to 'NMI 6/4C/244'.

The internal basework shall be in accordance with the pattern or variant 1.

The additional (external) basework shall be of an approved pattern and shall satisfy the conditions described in the documentation of approval NMI S480.

The basework to be used is selected using a key marked with a SCALE symbol and is indicated by a scale symbol indicating either 'SCALE 1' or 'SCALE 2' appearing in the display.

The counting functions of the two platforms may interact, however the weighing and taring functions are independent and do not interact.

TEST PROCEDURE No 6/4C/244

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

For multi-interval instruments with verification scale intervals of e_1, e_2 …, apply e_1 for zero adjustment, and maximum permissible errors apply e_1, e_2 …, as applicable for the load.

Ensure that instruments are only being used within the special temperature limits stated elsewhere in this Technical Schedule.

Prior to verification ensure that the instrument has been adjusted by the 'internal calibration' system, where fitted (see clause **1.8 Internal Calibration System** above).

TABLE 1

Class (II) models of the BBK422 / BBK432 / BBK442 / BBK462 series

Model Number Suffix	Maximum Capacity (*Max*)	Minimum Capacity (*Min*)	Verification Scale Interval (*e*)	Scale Interval (*d*)	Max DR	Platform Size
-3 DXS	3100 g	0.5 g	0.1 g	0.01 g	600 g	165 × 165 mm
-3 XS	3100 g	0.5 g	0.1 g	0.01 g		165 × 165 mm
-6 DXS	6100 g	0.5 g	0.1 g	0.01 g	1200 g	165 × 165 mm
-6 XS	6100 g	0.5 g	0.1 g	0.01 g		165 × 165 mm
-6 DSM	6100 g	5 g	1 g	0.1 g	1200 g	200 × 240 mm
-6 SM	6100 g	10 g	0.2 g			200 × 240 mm
-15 DLA	15100 g	5 g	1 g	0.1 g	3500 g	240 × 350 mm
-15 LA	15100 g	25 g	0.5 g			240 × 350 mm
-35 DLA	35100 g	5 g	1 g	0.1 g	7000 g	240 × 350 mm
-35 LA	35100 g	5 g	1 g	0.1 g		240 × 350 mm

TABLE 2

Class (III) models of the BBK422 / BBK432 / BBK442 / BBK462 series

Model Number Suffix	Maximum Capacity (Max_1 / Max_2) or (Max_1 / Max_2 / Max_3)	Minimum Capacity	Verification Scale Interval (e_1 / e_2) or (e_1 / e_2 / e_3)
-6 DSM	3100 / 6100 g	20 g	1 / 2 g
-15 LA, - 15 DLA	7600 / 15100 g	20 g	1 / 2 g
	10000 / 15100 g	20 g	1 / 2 g
-35 DLA, -35 LA	15100 / 35100 g	40 g	2 / 5 g
	20000 / 35100 g	40 g	2 / 5 g
	7600 / 15100 / 35100 g	20 g	1 / 2 / 5 g
	10000 / 20000 / 35100 g	20 g	1 / 2 / 5 g
	5000 / 10000 / 35100 g	20 g	1 / 2 / 5 g
	2000 / 5000 / 35100 g	20 g	1 / 2 / 10 g

FIGURE 6/4C/244 – 1

Mettler Toledo Model BBK462-6 XS Weighing Instrument

FIGURE 6/4C/244 – 2

Typical Sealing Arrangement

FIGURE 6/4C/244 – 3

(a) Model BBK422 - … LA Weighing Instrument

(b) Model BBK432 - … LA Weighing Instrument

FIGURE 6/4C/244 – 4

Model BBK442 - …. LA Weighing Instrument

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