Australian Government
Department of Industry and Science

National Measurement Institute

Certificate of Approval

No 6/18/29A

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.

Associated Scales Model TR 600 Overhead-track Weighing Instrument

submitted by Associated Scale Services Pty Ltd
Unit 4, 47 Learoyd Road
Acacia Ridge QLD 4110.

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 **1/10/22**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – interim certificate issued	11/05/04
1	Pattern & variant 1 approved – certificate issued	11/06/04
2	Variant 1 amended – notification of change issued	1/06/06
3	Pattern & variant 1 reviewed, address – notification of change issued	20/07/10
4	Pattern & variant 1 amended & **reviewed**, variants 2 to 13 approved – certificate issued	26/09/17

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/18/29A' 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.

The pattern as approved herein or with substitute approved indicators shall comply with General Certificate of Approval No 6B/0.

Note: New instruments manufactured under this approval shall only use load cells and/or indicators with current Supplementary Certificates of Approval.

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

Darryl Hines

TECHNICAL SCHEDULE No 6/18/29A

1. Description of Pattern

approved on 26/04/02
amended on 26/09/17

An Associated Scales model TR 600 overhead-track weighing instrument of 600 kg maximum capacity and approved for use with up to 3000 verification scale intervals.

1.1 Trackwork

The model TR 600 trackwork (Figures 1 and 2) has the weigh-rail up to 1200 mm long suspended from a frame supported by three load cells.

1.2 Load Cells

Three Kelba model KA1000 C3 load cells of 1000 kg capacity are used.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model KA1000 C3 load cell of maximum capacity:

Maximum capacity	1000 kg
Accuracy Class	C
Maximum number of verification intervals	3000
Minimum value of verification scale interval	0.092 kg
Minimum dead load output return value (DR)	0.07 kg
Output rating (nominal)	2.2 mV/V
Input impedance (nominal)	350 ohm
Supply voltage (AC or DC)	5 – 15 V
Number of leads (plus shield)	4
Cable length (±0.1 m)	(#)

(#) Manufactured in various lengths between 0.5 and 10 metres; the cable length must not be altered after manufacturer.

1.3 Indicator

A Gedge model GS1650 Mk3 digital indicator is used. The indicator is also described in the documentation of NMI approval No S193B.

1.4 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	.....
Indication of accuracy class	(III)
Maximum capacity	*Max* ..... kg *
Minimum capacity	*Min* ..... kg *
Verification scale interval	*e* = ... kg *
Serial number of the instrument	.....
Serial numbers of the load cells	..... #
Pattern approval mark for the instrument	NMI or NSC No 6/18/29A
Pattern approval mark for the indicator	NMI or NSC No S...

* These markings shall also be repeated adjacent to each reading face, if they are not already located there.

Alternatively, these may be marked on a nameplate for the trackwork.

1.5 Verification Provision

Provision is made for the application of a verification mark.

1.6 Sealing Provision

Provision is made for the calibration adjustments of the indicator to be sealed.

2. Description of Variant 1 — approved on 11/05/04 amended on 1/06/06

An Associated Scales model TR 600/4 overhead-track weighing instrument with a verification scale interval of 0.5 kg and with a maximum capacity of either 1000 kg or 1500 kg.

2.1 Trackwork

The model TR 600/4 trackwork (Figure 3) has the weigh-rail up to 1500 mm long suspended from a frame supported by four load cells.

2.2 Load Cells

Four Kelba model KA1000 C3 load cells of 1000 kg capacity are used.

Note that only these makes, models and capacities of load cells shall be used.

3. Description of Variant 2 — approved on 26/09/17

Instruments which are similar to the pattern but using three Anyload model 563 series load cells of 500 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT
Maximum capacity	500 kg
Accuracy Class	C
Maximum number of verification intervals	4000
Minimum value of verification scale interval	0.033 kg
Minimum dead load output return value (DR)	0.063 kg
Output rating (nominal)	3 mV/V
Input impedance (nominal)	400 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	4
Cable length (±0.1 m)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

4. Description of Variant 3 approved on 26/09/17

Instruments which are similar to the pattern but with a verification scale interval of 0.1 kg and with a maximum capacity of 300 kg maximum capacity using three HBM model HLC series load cells of 220 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model HLC series load cell of maximum capacity:

Load Cell Model	HLCA1C3, HLCB1C3, HLCF1C3
Maximum capacity	220 kg
Accuracy Class	C
Maximum number of verification intervals	3000
Minimum value of verification scale interval	0.022 kg
Minimum dead load output return value (DR)	0.037 kg
Output rating (nominal)	1.94 mV/V
Input impedance (nominal)	350 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	6
Cable length (±0.1 m)	3, 6, 12

5. Description of Variant 4 approved on 26/09/17

Instruments which are similar to the pattern but with a verification scale interval of 0.1 kg and with a maximum capacity of 300 kg maximum capacity using three Anyload model 563 series load cells of 500 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT
Maximum capacity	500 kg
Accuracy Class	C
Maximum number of verification intervals	4000
Minimum value of verification scale interval	0.033 kg
Minimum dead load output return value (DR)	0.063 kg
Output rating (nominal)	3 mV/V
Input impedance (nominal)	400 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	4
Cable length (±0.1 m)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

6. Description of Variant 5 approved on 26/09/17

Instruments which are similar to the pattern but with a verification scale interval of 0.2 kg and with a maximum capacity of 500 kg maximum capacity using three Anyload model 563 series load cells of 500 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT
Maximum capacity	500 kg
Accuracy Class	C
Maximum number of verification intervals	4000
Minimum value of verification scale interval	0.033 kg
Minimum dead load output return value (DR)	0.063 kg
Output rating (nominal)	3 mV/V
Input impedance (nominal)	400 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	4
Cable length (±0.1 m)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

7. Description of Variant 6 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.1 kg and with a maximum capacity of 300 kg maximum capacity using four HBM model HLC series load cells of 220 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model HLC series load cell of maximum capacity:

Load Cell Model	HLCA1C3, HLCB1C3, HLCF1C3
Maximum capacity	220 kg
Accuracy Class	C
Maximum number of verification intervals	3000
Minimum value of verification scale interval	0.022 kg
Minimum dead load output return value (DR)	0.037 kg
Output rating (nominal)	1.94 mV/V
Input impedance (nominal)	350 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	6
Cable length (±0.1 m)	3, 6, 12

8. Description of Variant 7 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.1 kg and with a maximum capacity of 300 kg maximum capacity using four Anyload model 563 series load cells of 500 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT
Maximum capacity	500 kg
Accuracy Class	C
Maximum number of verification intervals	4000
Minimum value of verification scale interval	0.033 kg
Minimum dead load output return value (DR)	0.063 kg
Output rating (nominal)	3 mV/V
Input impedance (nominal)	400 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	4
Cable length (±0.1 m)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

9. Description of Variant 8 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.2 kg and with a maximum capacity of 500 kg maximum capacity using four HBM model HLC series load cells of 550 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model HLC series load cell of maximum capacity:

Load Cell Model	HLCA1C3, HLCB1C3, HLCF1C3
Maximum capacity	550 kg
Accuracy Class	C
Maximum number of verification intervals	3000
Minimum value of verification scale interval	0.0495 kg
Minimum dead load output return value (DR)	0.092 kg
Output rating (nominal)	1.94 mV/V
Input impedance (nominal)	350 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	6
Cable length (±0.1 m)	3, 6, 12

10. Description of Variant 9 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.2 kg and with a maximum capacity of 500 kg maximum capacity using four Anyload model 563 series load cells of 500 kg or 750 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT	
Maximum capacity	500 kg	750 kg
Accuracy Class	C	C
Maximum number of verification intervals	4000	4000
Minimum value of verification scale interval	0.033 kg	0.05 kg
Minimum dead load output return value (DR)	0.063 kg	0.094 kg
Output rating (nominal)	3 mV/V	3 mV/V
Input impedance (nominal)	400 ohm	400 ohm
Supply voltage (AC or DC)	15 V	15 V
Number of leads (plus shield)	4	4
Cable length (±0.1 m)	(#)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

11. Description of Variant 10 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.2 kg and with a maximum capacity of 600 kg maximum capacity using four HBM model HLC series load cells of 550 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model HLC series load cell of maximum capacity:

Load Cell Model	HLCA1C3, HLCB1C3, HLCF1C3
Maximum capacity	550 kg
Accuracy Class	C
Maximum number of verification intervals	3000
Minimum value of verification scale interval	0.0495 kg
Minimum dead load output return value (DR)	0.092 kg
Output rating (nominal)	1.94 mV/V
Input impedance (nominal)	350 ohm
Supply voltage (AC or DC)	15 V
Number of leads (plus shield)	6
Cable length (±0.1 m)	3, 6, 12

12. Description of Variant 11 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.2 kg and with a maximum capacity of 600 kg maximum capacity using four Anyload model 563 series load cells of 500 kg or 750 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT	
Maximum capacity	500 kg	750 kg
Accuracy Class	C	C
Maximum number of verification intervals	4000	4000
Minimum value of verification scale interval	0.033 kg	0.05 kg
Minimum dead load output return value (DR)	0.063 kg	0.094 kg
Output rating (nominal)	3 mV/V	3 mV/V
Input impedance (nominal)	400 ohm	400 ohm
Supply voltage (AC or DC)	15 V	15 V
Number of leads (plus shield)	4	4
Cable length (±0.1 m)	(#)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

13. Description of Variant 12 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.5 kg and with a maximum capacity of 1000 kg maximum capacity using four Anyload model 563 series load cells of 750 kg or 1000 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT	
Maximum capacity	750 kg	1000 kg
Accuracy Class	C	C
Maximum number of verification intervals	4000	4000
Minimum value of verification scale interval	0.05 kg	0.067 kg
Minimum dead load output return value (DR)	0.094 kg	0.0125 kg
Output rating (nominal)	3 mV/V	3 mV/V
Input impedance (nominal)	400 ohm	400 ohm
Supply voltage (AC or DC)	15 V	15 V
Number of leads (plus shield)	4	4
Cable length (±0.1 m)	(#)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

14. Description of Variant 13 approved on 26/09/17

Instruments which are similar to variant 1 but with a verification scale interval of 0.5 kg and with a maximum capacity of 1500 kg maximum capacity using four Anyload model 563 series load cells of 1000 kg or 1500 kg or 2000 kg maximum capacity.

Note that only these makes, models and capacities of load cells shall be used. The load cell carries a label with the make, model, capacity and serial number.

For the purposes of calculations required by General Certificate No 6B/0 when an alternative indicator is used, the following parameters may be used for the model 563 series load cell of maximum capacity:

Load Cell Model	563YH, 563YHFK, 563YS, 563YSMT		
Maximum capacity	1000 kg	1500 kg	2000 kg
Accuracy Class	C	C	C
Maximum number of verification intervals	4000	4000	4000
Minimum value of verification scale interval	0.067 kg	0.1 kg	0.133 kg
Minimum dead load output return value (DR)	0.0125 kg	0.0188 kg	0.25 kg
Output rating (nominal)	3 mV/V	3 mV/V	3 mV/V
Input impedance (nominal)	400 ohm	400 ohm	400 ohm
Supply voltage (AC or DC)	15 V	15 V	15 V
Number of leads (plus shield)	4	4	4
Cable length (±0.1 m)	(#)	(#)	(#)

(#) Manufactured in various lengths between 1 and 15 metres; the cable length must not be altered after manufacturer.

TEST PROCEDURE No 6/18/29A

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

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

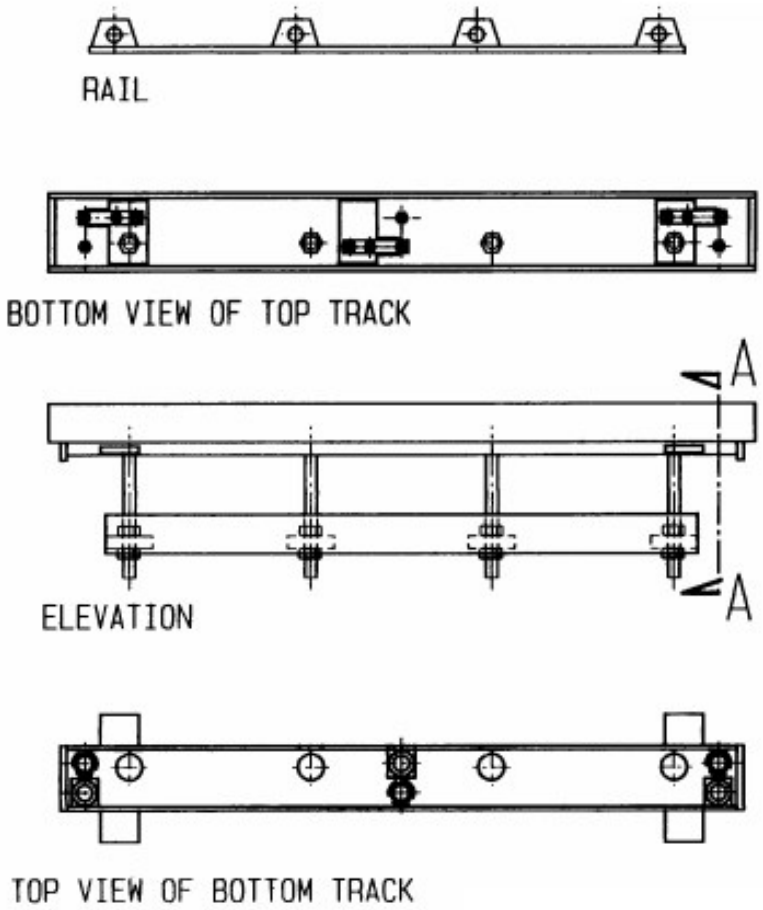
Maximum Permissible Errors

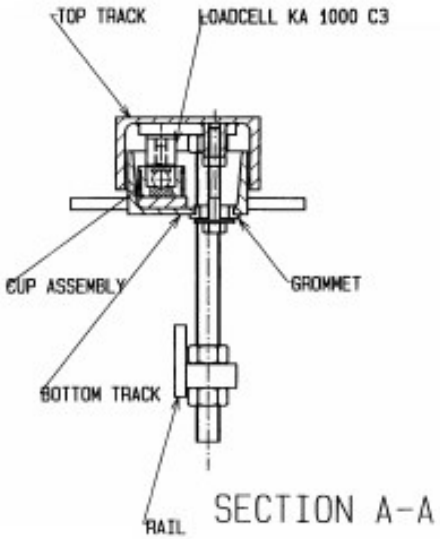
The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

FIGURE 6/18/29A – 1

Associated Scales Model TR 600 Trackwork

FIGURE 6/18/29A – 2

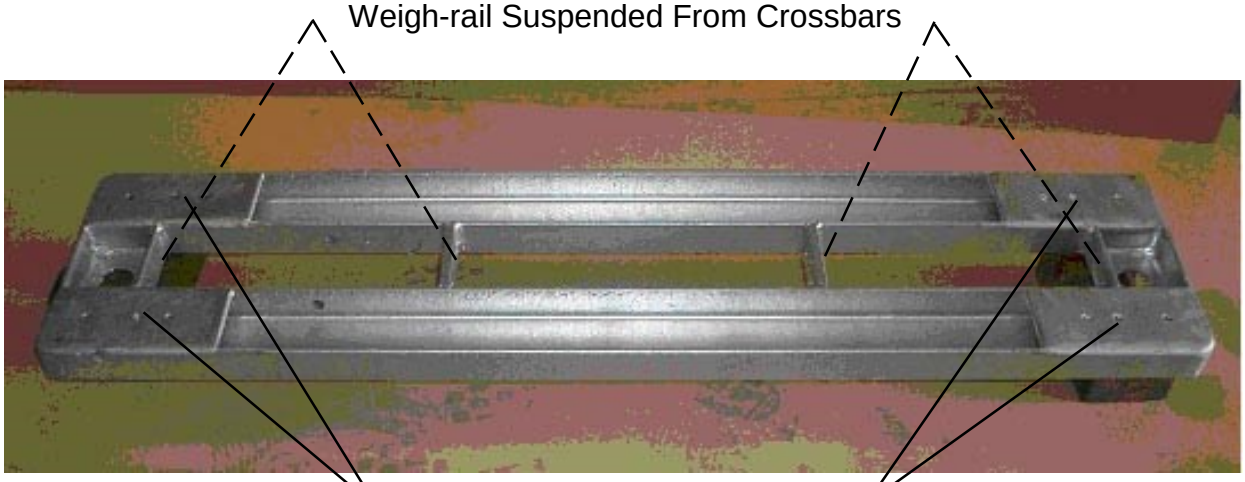




Associated Scales Model TR 600 Trackwork and Load Cell Mounting

FIGURE 6/18/29A – 3

Weigh-rail Suspended From Crossbars



Load Cells Under Plates

Associated Scales Model TR600/4 Trackwork

~ End of Document ~