



Australian Government

Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

NMI 6/4C/345

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.

Rinstrum Model XH-006M Weighing Instrument

submitted by Rinstrum Pty Ltd
Unit 4/31, Henry Street
Loganholme QLD 4129

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 October 2015.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 4 approved – certificate issued	28/07/26

CONDITIONS OF APPROVAL

General

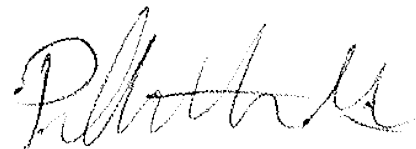
Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/4C/345' and only by persons authorised by the submitter.

It is the submitter'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 Certificate of Approval No S1/0B.

This approval shall NOT be used in conjunction with General Certificate of Approval No 6B/0.

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

**Phillip Mitchell**

A/g Manager
Policy and Regulatory
Services

TECHNICAL SCHEDULE No 6/4C/345

1. Description of Pattern

approved on 28/07/26

A Rinstrum model XH-006M (#) class  single range self-indicating non-automatic weighing instrument (Figure 1) of 6 kg maximum capacity with a verification scale interval (e) of 0.002 kg and with a minimum capacity of 0.04 kg.

Instruments are marked 'NOT FOR TRADING DIRECT WITH THE PUBLIC' (or similar wording) unless the maximum capacity of the instrument is greater than 100 kg (i.e. as may be the case for variant 3).

1.1 Basework

The Rinstrum model XH-006M basework has the load receptor directly supported by a single load cell. The load receptor has maximum nominal dimensions of 300 mm × 300 mm and typically uses a stainless steel construction.

1.2 Load cell

A ZEMIC model BM6G SE load cell of 20 kg maximum capacity is used.

1.3 Indicator

A Rinstrum model C3 series digital mass indicator (Figure 2) is used. The indicator is described in the documentation of approval NMI S869.

The indicator of the instrument may be mounted on a column or attached to the base.

1.3.1 Zero

The initial zero-setting device has a nominal range of not more than 20% of the maximum capacity of the instrument (*Max*). The initial zero-setting device can be disabled.

The instrument has a semi-automatic zero-setting device with a nominal range of not more than 4% of the maximum capacity of the instrument.

A zero-tracking device may be fitted.

1.3.2 Tare

A semi-automatic subtractive tare device of up to the maximum capacity of the instrument (*Max*) may be fitted.

A pre-set subtractive tare device of up to the maximum capacity of the instrument (*Max*) may be fitted.

1.3.3 Display Check

A display check is initiated whenever power is applied.

1.4 Levelling

The instrument is provided with adjustable feet and a level indicator underneath the load receptor. A notice indicating the location of the level indicator (e.g. "Level bubble provided under platform", or similar) shall be provided in a location clearly visible to the operator.

The instrument is to be used in a level condition as indicated by the level indicator.

1.5 Power Supply

The instrument operates from AC mains power (110-240 V AC nominal) fitted within the indicator housing or a 5 - 24 V DC power source.

Power may also be supplied by 100-240 V AC 50/60 Hz AC/DC mains adaptor with 12 V DC output.

Note: The switching power supply unit supplied for the indicator was a FranMar model FRA030E-S12-I (output 12 V, 2.5 A) – the submitter should be consulted regarding the acceptability of alternative power supply units.

1.6 Additional Features

Instruments may be fitted with dual displays, totalising, counting and other functions. These functions are not approved for trade use.

1.7 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 R 76 (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 NMI General Supplementary Certificate of Approval 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.

Instruments may be fitted with

- RS232 interfaces
- accessory ports
- digital inputs/outputs
- IR optical interface.

1.8 Data Storage Memory

Instruments 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 of Approval S1/0B.

1.9 Verification Provision

Provision is made for the application of a verification mark.

1.10 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Rinstrum		
Indication of accuracy class			
Pattern approval number for the instrument	NMI 6/4C/345		
Maximum capacity	<i>Max</i>	kg	#1 #3
Minimum capacity	<i>Min</i>	kg	#1 #3
Verification scale interval	<i>e</i> =	kg	#1 #3
Maximum subtractive tare	<i>T</i> = -	kg	#2 #3
Serial number of the instrument			
#1	These markings are shown near the display of the result		
#2	This marking is required if <i>T</i> is not equal to <i>Max</i> .		
#3	The units of measurement can be gram (g) and kilogram (kg)		

In addition, instruments shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording (see 1. *Description of Pattern* above).

1.11 Sealing Provision

The calibration and setup modes of the indicator can be secured with a full setup passcode. To ensure that a full setup passcode has been set, press and hold the SELECT key, navigate to FULL and then press the OK key (F2). The text "P.CODE?" will be displayed if a full setup passcode has been set. Pressing the CANCEL key (F3) will exit this sequence.

In addition, a non-resettable calibration event counter increments each time that calibration or any parameter effecting calibration is changed and saved. The value of the calibration event counter is shown (as C followed by a number) in the display as part of the power-up display sequence, and the value at the time of verification shall be recorded on a destructible adhesive label attached to the instrument.

Any subsequent alteration to the calibration or parameters will be evident as the recorded value and the current calibration event counter value will differ.

1.12 Software

The legally relevant software are as follows:

- ADC library is identified by a checksum number E9E5AE66 or F195BEA8.
- DSD library is identified by a checksum number C53C26A5.

The instructions for accessing the checksum numbers are as follows.

- Press and hold the SELECT key until SETUP is display.
- Wait until OPER is displayed.
- Press the SELECT key until ALIBI is displayed.
- Press the OK key (F2).
- The ADC checksum and DSD checksum will be displayed.

2. Description of Variant 1

approved on 28/07/26

The S series and M series of Rinstrum model XH instruments (shown in Figure 3), which are similar to the pattern but fitted with different maximum capacities. These baseworks typically have a stainless steel type construction with S series of Rinstrum model XH having nominal dimensions of 300 mm x 300 mm and M series of Rinstrum model XH having nominal dimensions of 300 mm x 400 mm.

The parameters of the approved baseworks are listed in Table 1 (the pattern is shown in **bold**).

Table 1 S series and M series of Rinstrum model XH Single Range Instruments

Basework Model (#)	Maximum Capacity (<i>Max</i>) (kg)	Minimum capacity (<i>Min</i>) (kg)	Verification scale interval (<i>e</i>) (g)	Platform Dimensions (mm × mm)	Load Cell Maximum Capacity, (<i>E_{max}</i>) (kg)	Zemic Load Cell Model
XH-006S	6	0.04	2	300 × 300	20	BM6G SE, Class C3, Y=10000
XH-015S	15	0.1	5	300 × 300	50	BM6G SE, Class C3, Y=10000
XH-030S	30	0.2	10	300 × 300	50	BM6G SE, Class C3, Y=10000
XH-060S	60	0.4	20	300 × 300	100	BM6G SE, Class C3, Y=10000
XH-006M	6	0.04	2	300 × 400	20	BM6G SE, Class C3, Y=10000
XH-015M	15	0.1	5	300 × 400	50	BM6G SE, Class C3, Y=10000
XH-030M	30	0.2	10	300 × 400	50	BM6G SE, Class C3, Y=10000
XH-060M	60	0.4	20	300 × 400	100	BM6G SE, Class C3, Y=10000

3. Description of Variant 2

approved on 28/07/26

The L series of Rinstrum model XH instruments (shown in Figure 3), which are similar to the pattern but fitted with different maximum capacities as listed in Table 2. These baseworks typically have a stainless steel type construction with nominal dimensions of 400 mm x 500 mm.

Table 2 L series of Rinstrum model XH Single Range Instruments

Basework Model(#)	Maximum Capacity (<i>Max</i>) (kg)	Minimum capacity (<i>Min</i>) (kg)	Verification scale interval (<i>e</i>) (g)	Platform Dimensions (mm × mm)	Load Cell Maximum Capacity, (<i>E_{max}</i>) (kg)	Zemic Load Cell Model
XH-030L	30	0.2	10	400 × 500	50	BM6G SE, Class C3, Y=10000
XH-060L	60	0.4	20	400 × 500	100	BM6G SE, Class C3, Y=10000

4. Description of Variant 3

approved on 28/07/26

The XL series of Rinstrum model XH instruments (shown in Figure 4), which are similar to the pattern but fitted with Zemic model BM6G load cell (4-hole) of different maximum capacities as listed in Table 3. These baseworks typically have a stainless steel type construction with nominal dimensions of 500 mm x 600 mm.

Table 3 XL series of Rinstrum model XH Single Range Instruments

Basework Model(#)	Maximum Capacity (Max) (kg)	Minimum capacity (Min) (kg)	Verification scale interval (e) (g)	Platform Dimensions (mm × mm)	Load Cell Maximum Capacity, (E_{max}) (kg)	Zemic Load Cell Model
XH-060XL	60	0.4	20	500 x 600	100	BM6G, Class C3, Y=10000
XH-150XL	150	1	50	500 x 600	200	BM6G, Class C3, Y=10000
XH-300XL	300	2	100	500 x 600	500	BM6G, Class C3, Y=10000

5. Description of Variant 4**approved on 28/07/26**

Single load cell baseworks of Rinstrum model XH instruments used with a compatible approved indicator (Supplementary approval with reference to document **NMI R 76 dated October 2015 or later**) provided the conditions set out below are met. In this case instruments may be known according to the basework model number (e.g., model XH-006M). Any devices and features described in the approval for the indicator shall apply to this instrument.

Note: Only submittor-authorised manufacture or conversion is permitted under this variant.

The basework is connected to the indicator directly without lengthening the load cell cable.

The minimum temperature limit of the instrument is equal to the greater of the lower temperature limit of the basework or indicator. The maximum temperature limit is equal to the lesser of the upper temperature limit of the basework or indicator. The temperature range of the instrument shall be a minimum of 30 °C (e.g., 0 °C to 40 °C or 5 °C to 35 °C).

Note: Where no special temperature limits are given in the **Descriptive Markings and Notices**, then the temperature limits are –10 °C to 40 °C. If the temperature limits of the instrument are other than –10 °C to +40 °C, additional marking of special temperature limits must be added to the existing descriptive markings.

In addition to the markings specified in clause **1.12 Descriptive Markings and Notices**, instruments are marked with the NMI approval number for the indicator used, together in the same location. Where the resulting instrument is a multiple range instrument, appropriate markings regarding the ranges and scale intervals shall be provided in accordance with the Supplementary Certificate for the indicator.

The approved single load cell baseworks and their limiting characteristics are given in Table 4, Table 5 and Table 6.

The conditions to be met are given below, and include calculations using the following terms:

Ex = Excitation voltage from indicator (V)

LC_Sens = Load cell sensitivity (mV/V)

E_{max} = Load cell maximum capacity (kg)

IZSR = Initial zero setting range for the indicator (kg) (positive range only)

DL = Dead load of load receptor (kg)

T^+ = Additive tare capacity (kg)

U_{min} = Minimum input voltage for the indicator (mV)

Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μV)

e = verification scale interval of the instrument (kg). ***In the case of multiple range or multi-interval instruments, any reference to 'e' refers to the smallest verification scale interval (i.e. e_1).***

$e_1, e_2, \dots$ = verification scale interval of each range for multiple range instruments (or partial weighing ranges for multi-interval instruments), e_1 refers to the smallest verification interval.

Max = the maximum capacity of the instrument. This refers to the maximum capacity of the highest range (i.e. Max_r for multiple range instruments).

Max_r = the maximum capacity of the instrument for a multiple range instrument, i.e. the maximum capacity of the highest range.

Max₁ Max₂ ... = the maximum capacity of the various ranges for a multiple range instrument. Max_1 refers to the maximum capacity of the smallest range.

n_{LC} = the maximum number of verification intervals for which the load cell or basework is approved (e.g. 3000 for a 'class C3' load cell).

DR = dead load output return value for the load cell. Note: Many load cells do not have a specified DR value.

The conditions are:

- The excitation voltage used is within the range approved for the baseworks.
- The load cell input impedance is within the impedance range approved for the indicator.
- The maximum load applied to the load cell (live load plus any dead load) does not exceed the load cell maximum capacity, i.e.
 $Max + DL + IZSR + T^+ \leq E_{max}$
- The verification scale interval is not less than the minimum value specified. ***In the case of multiple range or multi-interval instruments, the verification scale interval refers to the smallest verification scale interval (i.e. e_1).***
- The number of verification scale intervals of the instrument is less than or equal to the *maximum number of verification intervals* specified for the load cell and also for the approved indicator. ***In the case of multiple range or multi-interval instruments, the number of verification scale intervals refers to the largest number in any weighing range or partial weighing range (i.e. the largest of $Max_1/e_1, Max_2/e_2$ etc).***
- The signal voltage per verification scale interval is not less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval documentation for the indicator), i.e.

$$\text{Indicator Sensitivity} \leq 1000 \times Ex \times LC_Sens \times e / E_{max}$$

In the case of multiple range or multi-interval instruments, e is replaced by e_1 .

- The input voltage for the indicator (when the basework is unloaded) is not less than the minimum input voltage for the indicator (as specified in the approval documentation for the indicator), i.e.

$$U_{\min} \leq E_x \times LC_Sens \times DL / E_{\max}$$

Where $U_{\min}$ is not given in the Supplementary Certificate of Approval for the indicator, $U_{\min} = 0$ mV.

Additional requirement for multiple range operation:

In the case of indicators which are configured to form a multiple range weighing instrument the instrument shall comply with the following conditions:

- (i) *The smallest verification scale interval (e_1) shall satisfy the following:*

$$e_1 \geq DR \times Max_r / E_{\max}$$

Of course (i) cannot apply where a value of 'Dead load output return' DR is not given. In this case the smallest verification scale interval (e_1) shall satisfy the following:

$$e_1 \geq 0.4 \times Max_r / n_{LC}$$

Additional requirement for multi-interval operation:

In the case of indicators which are configured to form a multi-interval weighing instrument the instrument shall comply with the following conditions:

- (i) *The smallest verification scale interval (e_1) shall satisfy the following:*

$$e_1 \geq 2 \times DR \times Max / E_{\max}$$

Of course (i) cannot apply where a value of 'Dead load output return' DR is not given. In this case the smallest verification scale interval (e_1) shall satisfy the following:

$$e_1 \geq Max / n_{LC}$$

- (ii) *The instrument shall also satisfy the following condition with the exception of the last partial weighing range:*

$$Max_i / e_{i+1} \geq 500 \text{ (e.g. } Max_1/e_2 \geq 500 \text{ and } Max_2/e_3 \geq 500)$$

TEST PROCEDURE No 6/4C/345

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*.

Table 4 S series and M series of Rinstrum model XH Basework

Basework Model	XH-006S	XH-015S	XH-030S	XH-060S	XH-006M	XH-015M	XH-030M	XH-060M
Platform Size	300 mm x 300 mm				300 mm x 400 mm			
Basework Maximum Capacity (kg)	6	15	30	60	6	15	30	60
Typical Verification Scale Interval (kg)	0.002	0.005	0.01	0.02	0.002	0.005	0.01	0.02
Maximum No. of VSI (n_{max})	3000							
Dead Load of Platform (kg)	4		4		4.7		4.7	
Load Cell Used	BM6G SE		BM6G SE		BM6G SE		BM6G SE	
Load Cell Maximum Capacity E_{max} (kg)	20	50	50	100	20	50	50	100
Maximum Load Cell Scale Interval n_{LC}	3000							
Minimum Value of VSI for Basework (kg)	0.002	0.005	0.005	0.01	0.002	0.005	0.005	0.01
Minimum Dead Load Output Return DR (g)	3.33	8.33	8.33	16.67	3.33	8.33	8.33	16.67
Operating Temperature Range	-10 °C to +40 °C							
Load cell sensitivity	2 mV/V							
Input Impedance (Ω)	380			350	380			350
Maximum Excitation Voltage (V)	18							
Cable Length (m)	3							
No. of Leads (plus shield)	6							

Table 5 L series of Rinstrum model XH Basework

Basework Model	XH-030L	XH-060L
Platform Size	400 mm x 500 mm	
Basework Maximum Capacity (kg)	30	60
Typical Verification Scale Interval (kg)	0.01	0.02
Maximum No. of VSI (n_{max})	3000	
Dead Load of Platform (kg)	7.2	
Load Cell Used	BM6G SE	
Load Cell Maximum Capacity E_{max} (kg)	50	100
Maximum Load Cell Scale Interval n_{LC}	3000	
Minimum Value of VSI for Basework (kg)	0.005	0.01
Minimum Dead Load Output Return DR (g)	8.33	16.67
Operating Temperature Range	-10 °C to +40 °C	
Load cell sensitivity	2 mV/V	
Input Impedance (Ω)	380	350
Maximum Excitation Voltage (V)	18	
Cable Length (m)	3	
No. of Leads (plus shield)	6	

Table 6 XL series of Rinstrum model XH Basework

Basework Model	XH-060XL	XH-150XL	XH-300XL
Platform Size	500 mm x 600 mm		
Basework Maximum Capacity (kg)	60	150	300
Typical Verification Scale Interval (kg)	0.02	0.05	0.1
Maximum No. of VSI (n_{max})	3000		
Dead Load of Platform (kg)	12		
Load Cell Used	BM6G		
Load Cell Maximum Capacity E_{max} (kg)	100	200	500
Maximum Load Cell Scale Interval n_{LC}	3000		
Minimum Value of VSI for Basework (kg)	0.01	0.02	0.05
Minimum Dead Load Output Return DR (g)	16.67	33.33	83.33
Operating Temperature Range	-10 °C to +40 °C		
Load cell sensitivity	2 mV/V		
Input Impedance (Ω)	350		
Maximum Excitation Voltage (V)	18		
Cable Length (m)	3		
No. of Leads (plus shield)	4		

FIGURE 6/4C/345 – 1



Rinstrum Model XH-006M (Pattern)

FIGURE 6/4C/345 – 2



Rinstrum Model C3 Series Indicators (Pattern)

FIGURE 6/4C/345 – 3



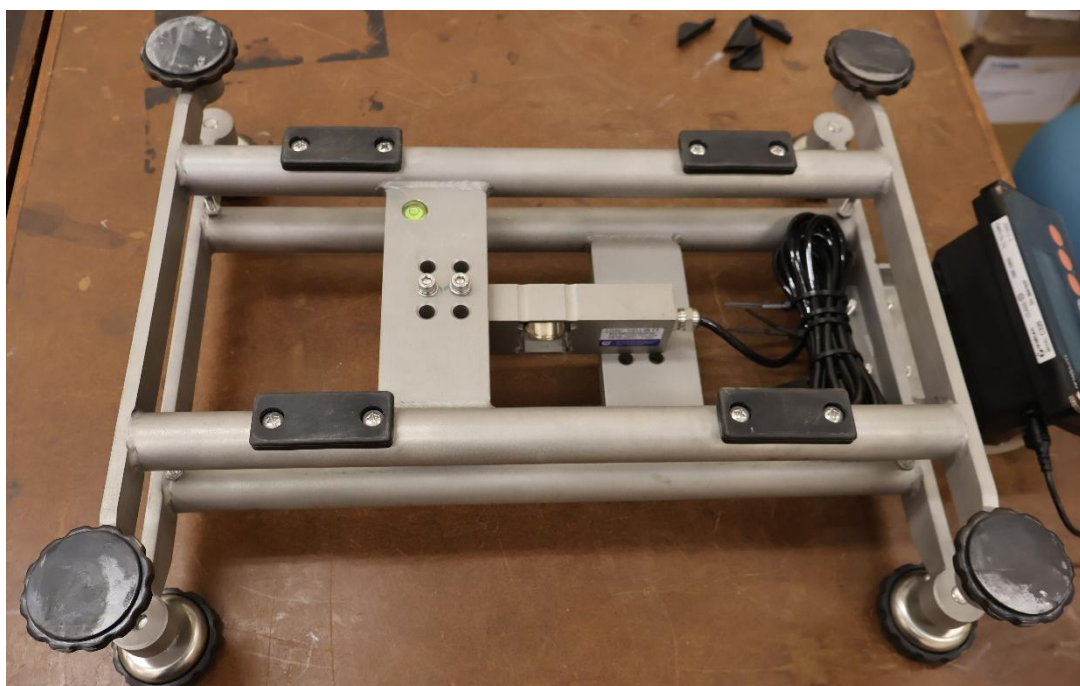
a) S Series of Rinstrum Model XH (Variant 1)



b) M Series of Rinstrum Model XH (Variant 1)

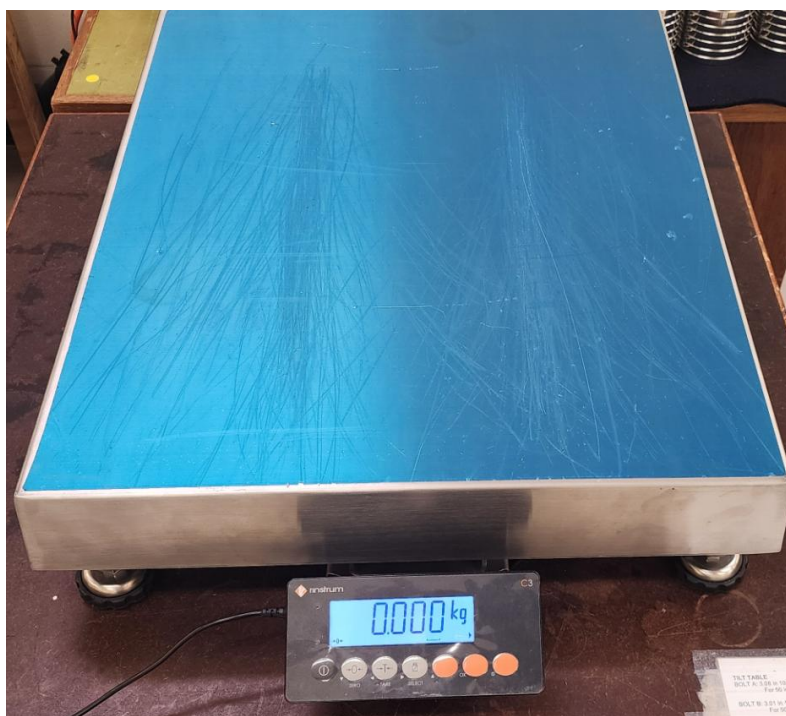


c) L Series of Rinstrum Model XH (Variant 2)

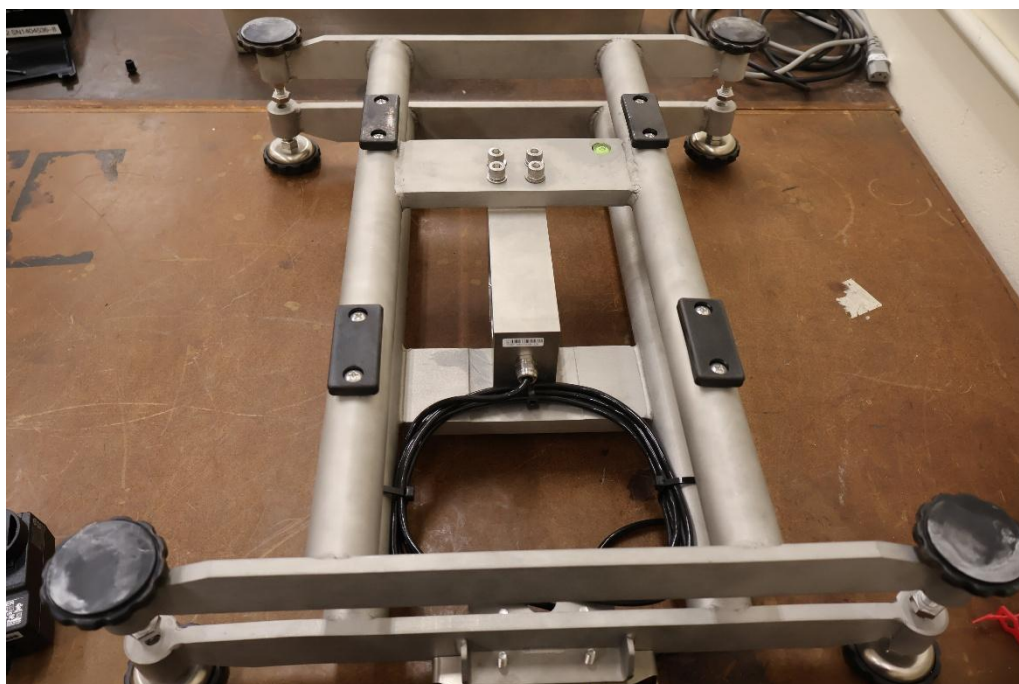


d) BM6G SE for S, M and L Series of Rinstrum Model XH (Pattern, Variants 1 to 2)

FIGURE 6/4C/345 – 4



a) XL Series of Rinstrum Model XH (Variant 3)



b) BM6G for XL Series of Rinstrum Model XH

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