Ministry of Business, Innovation & Employment

Wellington, New Zealand

CERTIFICATE OF APPROVAL

Weights and Measures Regulations 1999
Part 1 Regulations 5 and 6

Current Date of Issue: 04 December 2023
Original Date of Issue: 04 December 2023

Certificate 2454

Overseas Certificate No: NMI 6/4C/2396 Rev0

This certifies that the Ohaus Defender 3000 i-D33P Series / i-D33XW Series / i-D Series (Basework), Instrument described overleaf has been approved as suitable for trade use subject to any conditions stated in the schedule:

Summary of Document History		
Certificate/Variant	**Details**	**Issue Date**
Cert 2454	Pattern approved: Ohaus Defender 3000 Models i-D33P Series / i-D33XW Series / i-D Series (Basework) with various capacities	04/12/2023

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Under delegated authority from the Chief Executive of The Ministry of Business, Innovation & Employment

Note: This is not an approval to any person but only with respect to the type and pattern of weight, measure, or weighing or measuring instrument.

SCHEDULE

Overseas Certificate No: NMI 6/4C/2396 Rev0

Pattern:	NAWI – Bench & Counter Type
Make:	Ohaus Defender 3000
Model:	i-D33P Series / i-D33XW Series / i-D Series (Basework)
Manufacturer:	Ohaus Corporation, New Jersey, USA.
Submitter:	Accurate Weighing Limited
Maximum Capacity (Max):	15 kg ≤ MAX ≤ 300 kg (Single Range, See Tables 1 to 5)
Minimum Capacity:	20e
Verification Scale Interval:	≥ 0.005 kg (n=3000 max, See Tables 1 to 5)
Class:	III
Load Receptors:	≤ 600 mm x 800 mm (See Tables 1 to 5)
Conditions of Approval:	(i) The operator shall have a clear and simultaneous view of the indicator and the load receptor. (ii) Subject to the certificate of approval for the indicator, instruments not greater than 100 kg capacity must be marked 'NOT FOR TRADING DIRECT WITH THE PUBLIC' (or similar wording). (iii) The verification and subsequent certifications of the instrument must be carried out by Accredited Persons who are accredited for this category of instruments under the Weights and Measures Act 1987 Section 30A or by an Inspector of Weights and Measures. (iv) Trading Standards reserves the right to examine any instrument or component of an instrument purporting to comply with this approval. (v) This certificate does not imply and should not be construed as guarantee of compliance by the manufacturer or any other person with any requirements regarding safety. (vi) The metrological markings specified within this certificate must be permanently recorded on the instrument. (vii) A mark of verification must be used to secure all sealing provisions detailed within this certificate. Failure to secure any prescribed seal with a mark of verification shall deem the instrument unstamped and should not be used for trade.

Description:

Ohaus Defender 3000 Models i-D33P Series / i-D33XW Series / i-D Series basework are approved to be configured as a single range Class III, self-indicating non-automatic weighing instrument with certain capacities as detailed in Tables 1 to 5.

(*) The model number for the weighing instrument has a suffix of alpha numeric characters to reflect the maximum capacity, type of platform frame and dimensions of the load receptor.

1. CONSTRUCTION:

1.1 Basework:

Instruments use Model i-D Series basework (Figure 2) and the load receptor is directly supported by a single load cell.

The basework either uses a B1 type platform (stainless steel platform supported by a painted steel frame) or a C1 type platform of stainless-steel construction.

The maximum nominal dimensions of the load receptor is ≤ 600 mm x 800 mm (See Tables 1 to 5).

1.2 Indicator:

• Ohaus Defender 3000 Model i-D33P Series weighing instruments uses a Ohaus Defender 3000 Model i-D Series basework connected to Model i-DT33P digital indicator. The approval certificate for the indicator is #TS 2453.

• Ohaus Defender 3000 Model i-D33XW Series weighing instruments uses a Ohaus Defender 3000 Model Model i-D Series basework connected to Model i-DT33XW digital indicator. The approval certificate for the indicator is #TS 2453.

• Ohaus Defender 3000 Model i-D Series basework may be connected to an alternative Trading Standards approved compatible indicator and must meet the criteria conditions detailed in this certificate.

1.3 Load Cells:

Instruments are fitted with a single Ohaus Type LBZ3 C3 or Mettler Toledo Type SLP532 / SLP533 C3 load cell.

See Table 5 for the load cell technical specifications.

2. CRITERIA FOR THE EMAX CAPACITY OF LOAD CELLS:

The Emax capacity of the load cell used depends on the weighing instruments maximum capacity and must meet the following:

2.1 Correction factor (Q) > 1

Q = (Max + DL + IZSR + NUD + T+) / Max
Max = maximum capacity of instrument
DL = dead load of the load receptor (including any attachments/mechanism)
NUD = 20% of Max Cap of the weighing instrument
T+ = additive tare (if applicable)

2.2 Emax ≥ Q x Max x R/N

Emax = Load cell maximum cap
Q = Correction factor (see above)
Max = maximum cap of instrument
R = Reduction ratio = 1 (for complete load cell instrument)
N = number of load cells

2.3 Emin ≤ DL x R/N

Emin = load cell minimum capacity
DL = Dead load of the load receptor (including any attachments/mechanism)
R = Reduction ratio
N = number of load cells

2.4 Minimum Verification interval for the load cell (Vmin):

When configuring the instrument, the minimum value of the verification interval for the load cell (Vmin) must be ≤ e x R / √N, (where 'e' = verification scale interval of the weighing instrument, R = Reduction ratio and 'N' = total number of load cells).

2.5 Maximum number of load cell verification scale intervals:

The maximum number of load cell verification scale intervals of the load cell MUST be greater than or equal to the number of verification scale intervals of the weighing instrument.

3. CRITERIA TO USE AN APPROVED COMPATIBLE INDICATOR:

Trading Standards approved compatible indicator may be used and must meet the following conditions:

3.1 The maximum number of verification scale intervals of the indicator MUST be greater than or equal to the number of verification scale intervals of the weighing instrument. In the case of multi-interval or multiple range 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 Max1/e1, Max2/e2 etc).
3.2 The excitation voltage used is within the range approved for the basework.
3.3 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 document / technical specifications of the indicator).

i.e. Indicator Sensitivity ≤ (1000 x Ex x LC_Sens x R x e) / (N x Emax), where
Ex = Excitation from indicator (V)
LC_Sens = load cell sensitivity (mV/V)
R = Reduction ratio
e = verification scale interval of the instrument (kg)
N = number of load cells
Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μV)
Emax = Load cell maximum capacity

3.4 The maximum excitation current, and/or the load cell impedance for the indicator must satisfy the following:
• Minimum Load cell impedance for the indicator ≤ (Load cell input impedance) / N ≤ Maximum Load cell impedance for the indicator, and/or
• Max excitation current of indicator ≥ (excitation voltage of indicator) x N / (Load cell input impedance)

Where, N = number of load cells.

ZERO SETTING DEVICES:

Zero may be automatically corrected to within ±0.25e whenever the instrument comes to rest within 0.5e of zero. Zero may be set by pressing the zero button.

Initial zero setting is ≤ 20% of maximum capacity of the instrument.

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

METROLOGICAL MARKINGS:

Instruments must carry the following markings in one location:

Manufacturer' name ----
Serial number ----
Accuracy class ----
Pattern approval No TS2454**
Maximum capacity Max ..... kg *
Minimum capacity Min ..... kg *
Verification scale interval e =..... kg *
Serial number: ----
* These markings shall also be shown near the display
**This marking must be put on the indicator along with the approval number of the indicator.

If the approved indicators used with this approval require additional markings e.g. “Not to be used for direct sales to the public”, or similar wording, it shall also be marked as required.

The load cell/s must have the following information:
Manufacturer's name ……..
Model number …….
Serial number ……..
Pattern approval number ……..
Maximum capacity Emax …….
Accuracy Class …….

Components:	Ohaus Type LBZ3 C3 or Mettler Toledo Type SLP532 / SLP533 C3 load cell
Sealing:	• As detailed on the approved indicator. • Where a load cell cable is not hard wired into an indicator, the load cell connection point to the indicator must also be sealed.
Mark of Verification:	An adhesive destructible label or an approved type seal used for sealing must carry a Mark of Verification.
Levelling:	The basework is fitted with a sprit level and four adjustable feet for levelling purposes.

Figure 1 - Model i-D33P Series Weighing Instrument

(a) Pole Mount Version (b) Front Mount Version

Figure 2 - Model i-D Series Basework

B1 Type Platform

C1 Type Platform

TABLE 1

Instrument Model	Maximum Capacity (*Max*) (kg)	Minimum Capacity (*Min*) (kg)	Verification Scale Interval (*e*) (kg)	Basework Model	Platform Size (mm x mm)	Ohaus Load Cell Model	Load Cell Maximum Capacity, E_{max} (kg)
i-D33P15B1R1AU	15	0.1	0.005	i-D15B1RAU	305 x 355	LBZ3-D-C3-30kg	30
i-D33P30B1R1AU	30	0.2	0.01	i-D30B1RAU	305 x 355	LBZ3-A-C3-50kg	50
i-D33P60B1R1AU	60	0.4	0.02	i-D60B1RAU	305 x 355	LBZ3-A-C3-100kg	100
i-D33P60B1L2AU	60	0.4	0.02	i-D60B1LAU	420 x 550	LBZ3-B-C3-100kg	100
i-D33P150B1L2AU	150	1	0.05	i-D150B1LAU	420 x 550	LBZ3-B-C3-250kg	250
i-D33P150B1X2AU	150	1	0.05	i-D150B1XAU	500 x 650	LBZ3-C-C3-250kg	250
i-D33P300B1X2AU	300	2	0.1	i-D300B1XAU	500 x 650	LBZ3-C-C3-500kg	500
i-D33P300B1V3AU	300	2	0.1	i-D300B1VAU	600 x 800	LBZ3-C-C3-500kg	500
i-D33P600B1V3AU	600	4	0.2	i-D600B1VAU	600 x 800	LBZ3-C-C3-750kg	750

TABLE 2

Instrument Model	Maximum Capacity (*Max*) (kg)	Minimum Capacity (*Min*) (kg)	Verification Scale Interval (*e*) (kg)	Basework Model	Platform Size (mm x mm)	Ohaus Load Cell Model	Load Cell Maximum Capacity, E_{max} (kg)
i-D33P15B1R5AU	15	0.1	0.005	i-D15B1RAU	305 x 355	LBZ3-D-C3-30kg	30
i-D33P30B1R5AU	30	0.2	0.01	i-D30B1RAU	305 x 355	LBZ3-A-C3-50kg	50
i-D33P60B1R5AU	60	0.4	0.02	i-D60B1RAU	305 x 355	LBZ3-A-C3-100kg	100
i-D33P60B1L5AU	60	0.4	0.02	i-D60B1LAU	420 x 550	LBZ3-B-C3-100kg	100
i-D33P150B1L5AU	150	1	0.05	i-D150B1LAU	420 x 550	LBZ3-B-C3-250kg	250
i-D33P150B1X5AU	150	1	0.05	i-D150B1XAU	500 x 650	LBZ3-C-C3-250kg	250
i-D33P300B1X5AU	300	2	0.1	i-D300B1XAU	500 x 650	LBZ3-C-C3-500kg	500

TABLE 3

Instrument Model	Maximum Capacity (*Max*) (kg)	Minimum Capacity (*Min*) (kg)	Verification Scale Interval (*e*) (kg)	Basework Model	Platform Size (mm x mm)	Mettler Toledo Load Cell Model	Load Cell Maximum Capacity, E_{max} (kg)
i-D33XW15C1R6AU	15	0.1	0.005	i-D15C1RAU	305 x 355	SLP532-30	30
i-D33XW30C1R6AU	30	0.2	0.01	i-D30C1RAU	305 x 355	SLP532-50	50
i-D33XW60C1R6AU	60	0.4	0.02	i-D60C1RAU	305 x 355	SLP532-100	100
i-D33XW60C1L7AU	60	0.4	0.02	i-D60C1LAU	420 x 550	SLP532-100	100
i-D33XW150C1L7AU	150	1	0.05	i-D150C1LAU	420 x 550	SLP532-300	300
i-D33XW150C1X7AU	150	1	0.05	i-D150C1XAU	500 x 650	SLP533-300	300
i-D33XW300C1X7AU	300	2	0.1	i-D300C1XAU	500 x 650	SLP533-500	500

TABLE 4

Instrument Model	Maximum Capacity (*Max*) (kg)	Minimum Capacity (*Min*) (kg)	Verification Scale Interval (*e*) (kg)	Basework Model	Platform Size (mm x mm)	Mettler Toledo Load Cell Model	Load Cell Maximum Capacity, E_{max} (kg)
i-D33XW15C1R5AU	15	0.1	0.005	i-D15C1RAU	305 x 355	SLP532-30	30
i-D33XW30C1R5AU	30	0.2	0.01	i-D30C1RAU	305 x 355	SLP532-50	50
i-D33XW60C1R5AU	60	0.4	0.02	i-D60C1RAU	305 x 355	SLP532-100	100
i-D33XW60C1L5AU	60	0.4	0.02	i-D60C1LAU	420 x 550	SLP532-100	100
i-D33XW150C1L5AU	150	1	0.05	i-D150C1LAU	420 x 550	SLP532-300	300
i-D33XW150C1X5AU	150	1	0.05	i-D150C1XAU	500 x 650	SLP533-300	300
i-D33XW300C1X5AU	300	2	0.1	i-D300C1XAU	500 x 650	SLP533-500	500

TABLE 5A - Basework with Ohaus Load Cell

Basework Model	i-D15B1RAU	i-D30B1RAU	i-D60B1RAU	i-D60B1LAU	i-D150B1LAU
Platform Size	305 mm x 355 mm			420 mm x 550 mm	
Basework Maximum Capacity	15 kg	30 kg	60 kg	60 kg	150 kg
Typical Verification Scale Interval	0.005 kg	0.01 kg	0.02 kg	0.02 kg	0.05 kg
Maximum Number of Verification Scale Intervals (n_{max})	3000				
Dead Load of Platform	4 kg	4 kg	4 kg	8.4 kg	8.4 kg
Load Cell Used	LBZ3-D-C3-30kg	LBZ3-A-C3-50kg	LBZ3-A-C3-100kg	LBZ3-B-C3-100kg	LBZ3-B-C3-250kg
Load Cell Maximum Capacity E_{max}	30 kg	50 kg	100 kg	100 kg	250 kg
Minimum Value of Verification Scale Interval for Basework	0.005 kg	0.01 kg	0.02 kg	0.02 kg	0.05 kg
Minimum Dead Load Output Return DR	0.005 kg	0.0059 kg	0.0119 kg	0.0067 kg	0.0167 kg
Operating Temperature Range	-10 °C to +40 °C				
Output Rating at E_{max}	2 mV/V				
Input Impedance	409 Ω	406 Ω			
Excitation Voltage	5 – 12 V (AC / DC)				
Cable Length of Load Cell	2 m				
Number of Leads of Load Cell (plus shield)	4				

TABLE 5B - Basework with Ohaus Load Cell

Basework Model	i-D150B1XAU	i-D300B1XAU	i-D300B1VAU	i-D600B1VAU
Platform Size	500 mm x 650 mm		600 mm x 800 mm	
Basework Maximum Capacity	150 kg	300 kg	300 kg	600 kg
Typical Verification Scale Interval	0.05 kg	0.1 kg	0.1 kg	0.2 kg
Maximum Number of Verification Scale Intervals (n_{max})	3000			
Dead Load of Platform	13.95 kg	14.01 kg	27 kg	27 kg
Load Cell Used	LBZ3-C-C3-250kg	LBZ3-C-C3-500kg	LBZ3-C-C3-500kg	LBZ3-C-C3-750kg
Load Cell Maximum Capacity E_{max}	250 kg	500 kg	500 kg	750 kg
Maximum Load Cell Scale Interval n_{LC}	3000			
Minimum Value of Verification Scale Interval for Basework	0.05 kg	0.1 kg	0.1 kg	0.2 kg
Minimum Dead Load Output Return DR	0.0417 kg	0.025	0.025	0.0375
Operating Temperature Range	-10 °C to +40 °C			
Output Rating at E_{max}	2 mV/V			
Input Impedance	406 Ω			
Excitation Voltage	5 – 12 V (AC / DC)			
Cable Length of Load Cell	3 m			
Number of Leads of Load Cell (plus shield)	6			

TABLE 5C - Basework with Mettler Toledo Type SLP 532 Load Cell

Basework Model	i-D15C1RAU	i-D30C1RAU	i-D60C1RAU	i-D60C1LAU	i-D150C1LAU
Platform Size	305 mm x 355 mm			420 mm x 550 mm	
Basework Maximum Capacity	15 kg	30 kg	60 kg	60 kg	150 kg
Typical Verification Scale Interval	0.005 kg	0.01 kg	0.02 kg	0.02 kg	0.05 kg
Maximum Number of Verification Scale Intervals (n_{max})	3000				
Dead Load of Platform	4 kg	4 kg	4 kg	8.4 kg	8.4 kg
Load Cell Used	SLP 532-30	SLP 532-50	SLP 532-100	SLP 532-100	SLP 532-300
Load Cell Maximum Capacity E_{max}	30 kg	50 kg	100 kg	100 kg	300 kg
Maximum Load Cell Scale Interval n_{LC}	3500				
Minimum Value of Verification Scale Interval for Basework	0.005 kg	0.01 kg	0.02 kg	0.02 kg	0.05 kg
Minimum Dead Load Output Return DR	0.0043 kg	0.0071 kg	0.0143 kg	0.0143 kg	0.0426 kg
Operating Temperature Range	-10 °C to +40 °C				
Output Rating at E_{max}	2 mV/V				
Input Impedance	387 Ω				
Excitation Voltage	5 – 15 V (AC / DC)				
Cable Length of Load Cell	2 m				
Number of Leads of Load Cell (plus shield)	6				

TABLE 5D - Basework with Mettler Toledo Type SLP 533 Load Cell

Basework Model	i-D150C1XAU	i-D300C1XAU
Platform Size	500 mm x 650 mm	
Basework Maximum Capacity	150 kg	300 kg
Typical Verification Scale Interval	0.05 kg	0.1 kg
Maximum Number of Verification Scale Intervals (n_{max})	3000	
Dead Load of Platform	13.95 kg	14.01 kg
Load Cell Used	SLP 533-300	SLP 533-500
Load Cell Maximum Capacity E_{max}	300 kg	500 kg
Maximum Load Cell Scale Interval n_{LC}	3000	
Minimum Value of Verification Scale Interval for Basework	0.05 kg	0.1 kg
Minimum Dead Load Output Return DR	0.05 kg	0.0833 kg
Operating Temperature Range	-10 °C to +40 °C	
Output Rating at E_{max}	2 mV/V	
Input Impedance	387 Ω	
Excitation Voltage	5 – 15 V (AC / DC)	
Cable Length of Load Cell	2.5 m	
Number of Leads of Load Cell (plus shield)	6	