Ministry of Business, Innovation & Employment

Wellington, New Zealand

CERTIFICATE OF APPROVAL

Weights and Measures Regulations 1999
Part 1 Regulations 5 and 6

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Certificate 2118

This certifies that the TScale / Taiwan Scale PB & SPB Series, Weighing Instrument described overleaf has been approved as suitable for trade use subject to any conditions stated in the schedule:

Figure 1 - Model SPB3024 Weighing Instrument

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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

Pattern:	Weighing Instrument
Make:	TScale / Taiwan Scale
Model:	PB & SPB Series
Manufacturer:	TScale Electronics Mfg. (Kunshan) Co., Ltd - China
Submitter:	Maximus Scales Limited
Maximum Capacity (Max):	6 kg ≤ Max ≤ 300 kg (See Table 1)
Minimum Capacity:	20e
Verification Scale Interval:	See Table 1 (n = 3000 max)
Class:	III
Load Receptors:	See Table 1.
Tare:	- (Max-e)
Conditions of Approval:	1. Where any other approved compatible indicator is used, the indicator must meet the Criteria detailed in this certificate 2. Instruments not greater than 100 kg capacity shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH PUBLIC, or similar wording 3. Subject to condition '2', instruments when used for trading direct with public must be located such that all primary indications and the weighing platform are clearly and simultaneously visible to both the vendor and the customer. If the display is mounted separately, it shall be located in a clear visual relationship and proximity to the weighing platform 4. Trading Standards reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Description:

The TScale (also known as T-Scale or Taiwan Scale) model PB / SPB Series (*) are a Class III non-automatic, self indicating weighing instrument with a maximum capacity as detailed below in Table 1.

(*) Note: The model number has a suffix of numerical characters that relate to the dimension of the load receptor and is detailed in Table 1.
For example PB3024 has a load receptor size of 300 x 240 mm, Table 1 gives detailed information.

Construction Details:
Basework:
Model PB Series have a stainless steel load receptor directly supported by a single point aluminium load cell. The basework is constructed of mild steel and is supported on four adjustable rubber feet.

Model SPB Series have a stainless steel load receptor directly supported by a single point stainless steel load cell. The basework is constructed of stainless steel and is supported on four adjustable rubber feet.

Load Cells:
A single point Zemic Type L6D, L6E3, B6N or BM6G load cells of accuracy Class C3 are used. The load cells are tested in accordance to OIML R60, Table 2 gives technical specifications.

Indicator:
(i) A Taiwan Scale Model BW digital indicator is used for PB Series basework.
(ii) A Taiwan Scale Model BWS digital indicator is used for SPB Series basework.

The indicators are described in the certificate of approval #2042 2042.

Note: Any other Trading Standards approved compatible indicator may be used and must meet the criteria detailed in this certificate.
The indicator is mounted on a column or it may also be located separately.

CRITERIA:
Certain combinations of basework with an approved compatible indicator must meet the following:

The conditions to be met are:
a) The excitation voltage used is within the range approved for the basework
b) The maximum load applied to the basework (live load plus any dead load does not exceed the load cell maximum capacity)
c) The verification scale interval is not less than the minimum value specified
d) The number of verification scale intervals is less than or equal to the n max specified
e) 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 e) / (N x Emax), where
Ex = Excitation from indicator (V)
LC_Sens = load cell sensitivity (mV/V)
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)

ZERO SETTING DEVICES:
The Initial zero setting device has a nominal range of not more than 20% of the maximum capacity of the instrument.

Semi-automatic zero setting: The Instrument has a semi-automatic zero setting device (zero button) with a nominal range of not more than 4% of the maximum capacity of the instrument.

Zero-tracking:
Zero-tracking operates provided that the instrument is within range of not more than 4% of its capacity.

METROLOGICAL MARKINGS

A plate, which carries the metrological markings, is affixed to the side of the instrument.

Manufacturer's name .....
Serial number
Accuracy class ....
Pattern approval No TS 2118**
Max cap* .....
Temperature Range
Min cap* .....
Verification scale interval* .....
Tare capacity ....

*These markings shall also be shown near the display.
** Approval number TS 2118 must be shown near the display along with approval number of the indicator.

The markings below are to be affixed to the load cell.

Manufacturer's name ……..
Model number …….
Serial number ……..
Pattern approval number ……..
Maximum capacity Emax …….
Class

Components:	• Zemic Type L6D, L6E3, B6N or BM6G load cells • A Taiwan Scale model BW and BWS digital indicators (or any other Trading Standards approved compatible indicator may be used).
Sealing:	As required on the approved indicator.
Mark of Verification:	The sealing must carry a mark of verification.
Levelling:	Instruments are provided with adjustable feet and a level indicator. Adjacent to the level indicator is a notice stating 'instrument must be level when in use' or similar wording.

Figure 2 - Typical Basework Design

Basework Design for SPB3024 & PB3024

Figure 3 - Model PB3545 Weighing Instrument

Figure 4 - Model SPB6060 Weighing Instrument

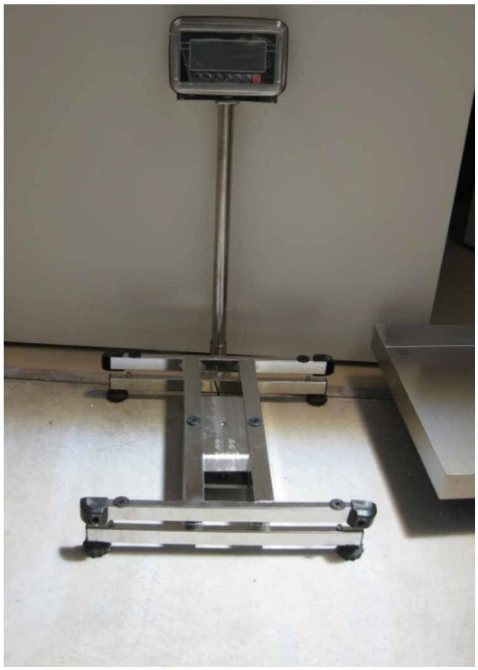

Figure 5 - Typical Basework Design for few SPB Series

Basework Design for SPB4040 / SPB6060 / SPB3236 / SPB4050

TABLE 1 - Configuration Details

MODEL	MAX. CAPACITY	MIN. CAPACITY	SCALE INTERVAL	LOAD CELL TYPE	LOAD CELL EMAX.
PB3024	30kg	0.2kg	0.01kg	ZEMIC L6D	50kg
PB3024	15kg	0.1kg	0.005kg	ZEMIC L6D	20kg
PB3024	6kg	0.04kg	0.002kg	ZEMIC L6D	10kg
PB3545	150kg	1kg	0.05kg	ZEMIC L6E3	200kg
PB3545	60kg	0.4kg	0.02kg	ZEMIC L6E3	100kg
PB3545	30kg	0.2kg	0.01kg	ZEMIC L6E3	50kg
SPB4040	150kg	1kg	0.05kg	ZEMIC B6N	200kg
SPB4040	60kg	0.4kg	0.02kg	ZEMIC B6N	100kg
SPB4040	30kg	0.2kg	0.01kg	ZEMIC B6N	50kg
SPB6060	300kg	2kg	0.2kg	ZEMIC BM6G	500kg
SPB6060	150kg	1kg	0.05kg	ZEMIC BM6G	200kg
SPB6060	60kg	0.4kg	0.02kg	ZEMIC BM6G	100kg
SPB3024	30kg	0.2kg	0.01kg	ZEMIC B6N	50kg
SPB3024	15kg	0.1kg	0.005kg	ZEMIC B6N	20kg
SPB3024	6kg	0.04kg	0.002kg	ZEMIC B6N	10kg
SPB3236	60kg	0.4kg	0.02kg	ZEMIC B6N	100kg
SPB3236	30kg	0.2kg	0.01kg	ZEMIC B6N	50kg
SPB3236	15kg	0.1kg	0.005kg	ZEMIC B6N	20kg
SPB4050	150kg	1kg	0.05kg	ZEMIC B6N	200kg
SPB4050	60kg	0.4kg	0.02kg	ZEMIC B6N	100kg

TABLE 2A - ZEMIC Type L6D Load cell - Technical Specifications

Type		L6D-xx-xxx-xxx-xx Series
Humidity classification		CH
Fraction p_{lc}		0,7
Temperature range		-10 / +40 °C
Maximum capacity	Emax	3 kg up to and including 50 kg
Accuracy class		C
Maximum number of load cell verification intervals	n_{max}	5000
Ratio of minimum LC verification interval	**Y** = E_{max} / v_{min}	20000
Ratio of minimum dead load output return	**Z** = E_{max} /2*DR	7500

Minimum dead load	: 0 kg
Safe overload	: 150 % of E_{max}
Rated Output	: 2,0 mV/V ± 0,2 mV/V
Input impedance	: 409 Ω ± 6 Ω
Output impedance	: 350 Ω ± 3 Ω
Recommended excitation	: 5 - 12 V DC/AC
Excitation maximum	: 18 V DC/AC
Transducer material	: Aluminum alloy
Atmospheric protection	: Silicon rubber

TABLE 2B - ZEMIC Type L6E3 Load cell - Technical Specifications

Type		L6E3-xx-xxx-xxx- Series	
Humidity classification		CH	
Fraction p_{lc}		0,7	
Temperature range		-10 °C / +40 °C	
Maximum capacity	Emax	50 kg up to and including 250 kg	300 kg up to and including 500 kg
Accuracy class		C	
Maximum number of load cell verification intervals	n_{max}	4000	5000
Ratio of minimum LC verification interval	**Y** = E_{max} / v_{min}	20000	
Ratio of minimum dead load output return	**Z** = E_{max} /2*DR	7500	

Minimum dead load	:	0 kg
Safe overload	:	150 % of E_{max}
Rated Output	:	2,0 mV/V ± 0,2 mV/V
Input impedance	:	406 Ω ± 6 Ω
Output impedance	:	350 Ω ± 3 Ω
Recommended excitation	:	5 - 12 V AC/DC
Excitation maximum	:	18 V AC/DC
Transducer material	:	Aluminum alloy
Atmospheric protection	:	Silicon rubber

TABLE 2C - ZEMIC Type B6N Load cell - Technical Specifications

Type		B6N-xx-xxx-xxx-xx Series
Humidity classification		CH
Fraction p_{lc}		0,7
Temperature range		-10 °C / +40 °C
Maximum capacity	Emax	7 kg up to and including 35 kg
Accuracy class		C
Maximum number of load cell verification intervals	$\mathbf{n_{max}}$	4000
Ratio of minimum LC verification interval	**Y** = E_{max} / v_{min}	15000
Ratio of minimum dead load output return	**Z** = E_{max} /2*DR	4000

Minimum dead load	:	0 kg
Safe overload	:	150% of E_{max}
Rated Output	:	2 mV/V ± 0,2 mV/V
Input impedance	:	430 Ω ± 60 Ω
Output impedance	:	351 Ω ± 2 Ω
Recommended excitation	:	5-12 V DC/AC
Excitation maximum	:	18 V DC/AC
Transducer material	:	Stainless steel
Atmospheric protection	:	Silicon rubber