



**Australian Government**  
**National Measurement  
Institute**

Bradfield Road, West Lindfield NSW 2070

**Certificate of Approval**  
**No 6/14G/8**

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

Herbert Model Gemini Automatic Catchweighing Instrument

submitted by            Herbert Industrial Limited  
                                 Smithfield House  
                                 Rookwood Way  
                                 Haverhill    Suffolk    CB9 8PB  
                                 UNITED KINGDOM.

**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 51, *Automatic Catchweighing Instruments*, July 2004.

**CONDITIONS OF APPROVAL**



This approval becomes subject to review on 1 December **2012**, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 6/14G/8' 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.

The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

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

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

#### DESCRIPTIVE ADVICE

**Pattern:** approved 11 November 2002

- A Herbert model Gemini class Y(a) automatic catchweighing instrument of 2 kg maximum capacity. Also known as the model Gemini Lightning.

**Variants:** approved 11 November 2002

1. With alternative labellers.

**Variants:** approved 10 January 2003

2. Of 4 kg maximum capacity.

Technical Schedule No 6/14G/8 describes the pattern and variants 1 & 2.

**Variants:** approved 4 May 2004

3. A Herbert model Gemini Solo class Y(a) automatic catchweighing instrument.

Technical Schedule No 6/14G/8 Variation No 1 describes variant 3.

**Variants:** approved 24 October 2008

4. With alternative software.

Technical Schedule No 6/14G/8 Variation No 2 describes variant 4.

#### FILING ADVICE

Certificate of Approval No 6/14G/8 dated 28 May 2004 is superseded by this Certificate, and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 6/14G/8 dated 27 October 2008

Technical Schedule No 6/14G/8 dated 15 January 2003 (incl. Test Procedure)

Technical Schedule No 6/14G/8 Variation No 1 dated 28 May 2004 (incl. Notification of Change)

Technical Schedule No 6/14G/8 Variation No 2 dated 27 October 2008

Figures 1 to 5 dated 15 January 2003

Figures 6 and 7 dated 28 May 2004

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 6/14G/8

**Pattern:** Herbert Model Gemini Automatic Catchweighing Instrument

**Submittor:** Herbert Industrial Ltd  
Rookwood Way  
Haverhill Suffolk CB9 8PB UK

### 1. Description of Pattern

A Herbert model Gemini class Y(a) automatic catchweighing instrument (Figures 1 and 2) which is approved for use to weigh objects while in motion.

#### 1.1 Details

The instrument is a PC based single-interval class Y(a) automatic catchweighing instrument with a maximum capacity of 2 kg and with a verification scale interval of 0.001kg. Instruments have a minimum capacity of 0.1 kg.

Weighing is conducted dynamically (package weighed in motion). The maximum belt speed of the weighing receptor is 1 m/s. The throughput is 150 packages/minute for packages  $\leq$  500 g and 120 packages/minute for packages  $>$  500 g; the instrument has facilities to detect and provide error messages for situations outside these limits.

NOTE: A static non-automatic weighing mode is also available in which the conveyors do not operate.

Instruments are approved for use over a temperature range of  $-5^{\circ}\text{C}$  to  $+30^{\circ}\text{C}$ , and are so marked.

The pattern (Figures 1 to 3) comprises :

- (a) a terminal/indicator;
- (b) a weighing unit and conveyor system; and
- (c) from one to four printing units (Figure 4) each comprised of a thermal printer, a roll of labels and a compressed air driven unit used to apply the label to the weighed object.

The weighing system has a belt conveyor-type load receptor having maximum nominal dimensions of 465 x 280 mm.

The printer unit/s are positioned automatically.

#### 1.2 Terminal/Indicator

The terminal/indicator is fitted with an LCD touch screen display/keyboard. This is used to control the system and store data such as system parameters (e.g. conveyor speed, printing unit position and label format). It displays the weight (in kg).

Instruments have unit price to \$999.99/kg, price to \$999.99, a price-look-up (PLU) facility and a separate tare display.

### **1.3 Weighing Unit and Conveyor System**

The weighing unit (Figure 3) contains an HBM model PW2AG6 single point load cell of 12 kg maximum capacity.

The conveyor system comprises two infeed conveyors, a weighing receptor/conveyor and an outfeed conveyor with an associated electric motor and drive arrangement for each conveyor. Optical sensors are provided, located along the infeed and weighing receptor conveyors. The infeed conveyors space the objects to be weighed, the side guides being positioned manually.

### **1.4 Zero**

The initial zero-setting device has a nominal range of less than 20% of the maximum capacity of the instrument.

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 (this shall operate only whilst the conveyors are stationary).

The zero-tracking device automatically corrects zero to within  $\pm 0.25e$  whenever the instrument is within  $\pm 0.5e$  of zero (this may operate whilst the conveyors are operating).

### **1.5 Tare**

A semi automatic subtractive taring device of up to maximum capacity may be fitted; this device can only be activated when the conveyors are stationary.

The instrument has a pre-set subtractive taring device of up to maximum capacity. Pre-set tare values are stored in association with price-look-up (PLU) items.

### **1.6 Operation**

In dynamic mode, an object to be weighed moves from the infeed conveyor onto the weighing receptor conveyor and is weighed while in motion. After weighing, the object continues onto the outfeed conveyor where a label is then printed and applied to the object.

### **1.7 Sealing Provision**

The instrument maintains a log of all alterations to its calibration. This log may be accessed through the reports mode of the instrument (press Reports from the operation menu, and then Calibration Log). The log lists a serial number (of the change), a date and time, and other parameters including a CRC (cyclic redundancy check) number.

At the time of verification/certification the most recent calibration should be determined and the corresponding CRC number should be recorded with the verification/certification mark. By checking whether this recorded CRC value corresponds to the most recent value in the calibration log, it can be determined whether calibration has been altered.

## 1.8 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

## 1.9 Descriptive Markings

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Herbert Industrial Ltd
Importer's mark, or name written in full	.....
Model designation	.....
Serial number	.....
Accuracy class	Y(a)
Pattern approval mark	NSC No 6/14G/8
Maximum capacity	Max .....
Minimum capacity	Min .....
Verification scale interval	$e =$ .....
Maximum subtractive tare	$T = -$ .....
Maximum conveyor speed	..... m/s
Special temperature limits	-5°C to +30°C
Pneumatic pressure	.....

## 2. Description of Variants

### 2.1 Variant 1

The instrument with alternative labeller arrangements, such as a single labeller or base labeller (Figure 5). Combinations of labellers may be used to maximise the rate of labelling, or to provide additional labels not related to the measurement data.

### 2.2 Variant 2

The instrument with a maximum capacity of 4 kg and with a verification scale interval of 0.002 kg. Instruments have a minimum capacity of 0.1 kg.

The throughput for packages > 2 kg is a maximum of 100 packages/minute.

## TEST PROCEDURE

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

### Non-automatic Operation

The maximum permissible errors for increasing and decreasing loads on initial verification/certification for loads,  $m$ , expressed in verification scale intervals,  $e$ , are:

- $\pm 0.5e$  for loads  $0 \leq m \leq 500$ ;
- $\pm 1.0e$  for loads  $500 < m \leq 2\,000$ ; and
- $\pm 1.5e$  for loads  $2\,000 < m \leq 10\,000$ .

- With the conveyor switched off, carry out a load test and an eccentricity test.

### Automatic Operation

The maximum permissible errors for class Y(a) automatic catchweighing instruments for increasing and decreasing loads on initial verification/certification for loads,  $m$ , expressed in verification scale intervals,  $e$ , are:

$\pm 1.5e$  for loads  $0 \leq m \leq 500$ ;  
 $\pm 2e$  for loads  $500 < m \leq 2\,000$ ; and  
 $\pm 2.5e$  for loads  $2\,000 < m \leq 10\,000$ .

- Prepare two test objects, one close to minimum capacity and one close to maximum capacity. With the conveyors running, apply each mass separately at least ten times. The masses of the test objects shall be measured on a verified, non-automatic weighing instrument with an uncertainty equal to or better than  $0.5e$ .
- The tests shall be conducted at the maximum rate at which the system will operate (i.e. introduce packages immediately after each other).
- Vary the position of the test objects across the receptor.

TESTS - Use the following tests to determine compliance with the maximum permissible errors -  $n$  is a whole number.

TEST 1 – Maximum permissible error =  $\pm 1.5e$

Test load =  $ne$

Readings:	A: $(n - 2)e$	reject
	B: $(n + 2)e$	reject
	$A < \text{Readings} < B$	accept

TEST 2 – Maximum permissible error =  $\pm 2e$

Test load =  $(n + 0.5)e$

Readings:	A: $(n - 2)e$	reject
	B: $(n + 3)e$	reject
	$A < \text{Readings} < B$	accept

TEST 3 – Maximum permissible error =  $\pm 2.5e$

Test load =  $ne$

Readings:	A: $(n - 3)e$	reject
	B: $(n + 3)e$	reject
	$A < \text{Readings} < B$	accept

TECHNICAL SCHEDULE No 6/14G/8

VARIATION No 1

**Pattern:** Herbert Model Gemini Automatic Catchweighing Instrument

**Submittor:** Herbert Industrial Ltd  
Smithfield House  
Rookwood Way  
Haverhill  
Suffolk CB9 8PB UK

**1. Description of Variant 3**

The Herbert model Gemini Solo class Y(a) automatic catchweighing instrument (Figures 6 and 7) which is similar to the pattern (or variant 2) but which has the weighing unit and conveyor system in a single unit.

The system uses a single infeed conveyor and a single printer.

The system has a maximum throughput of up to 100 packages/minute depending on package and labelling characteristics.

NOTIFICATION OF CHANGE

In Technical Schedule No 6/14G/8 dated 15 January 2003, clause **1. Description of Pattern** is amended by adding the following:

“Instruments may also be known as the model Gemini Lightning.”

TECHNICAL SCHEDULE No 6/14G/8

VARIATION No 2

**Pattern:** Herbert Model Gemini Automatic Catchweighing Instrument

**Submittor:** Herbert Industrial Limited  
Smithfield House, Rookwood Way  
Haverhill Suffolk CB9 8PB  
UNITED KINGDOM

**1. Description of Variant 4**

The Herbert model Gemini instrument having version 4.xx or version 5.xx console software (where xx represents versions which implement changes that are not related to metrological or legally relevant aspects of the instrument). The software version number is shown in the top left corner of the Operation Screen, and is also accessible by selecting Control Panel / System Information / Software from the Operation menu).

This software version implements altered software protection and sealing features. A CRC (cyclic redundancy check) value is provided for a number of sets of parameters. To access the CRC values, from the Operation Menu select Control Panel followed by System Information and Software Protection – the CRC values for the following sets of parameters will be shown:

- WELMEC CODE;
- WELMEC SETTINGS;
- OPERATIONAL PARAMETERS;
- CALIBRATION LOG; and
- INSTALLATION LOG.

These CRC values should be recorded with the verification/certification mark. By checking whether the CRC values have changed from the previously recorded values, it can be determined whether the instrument parameters and/or calibration have been altered.

NOTE: The date at which this approval becomes due for review has been amended following completion of a review.



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15 January 2003

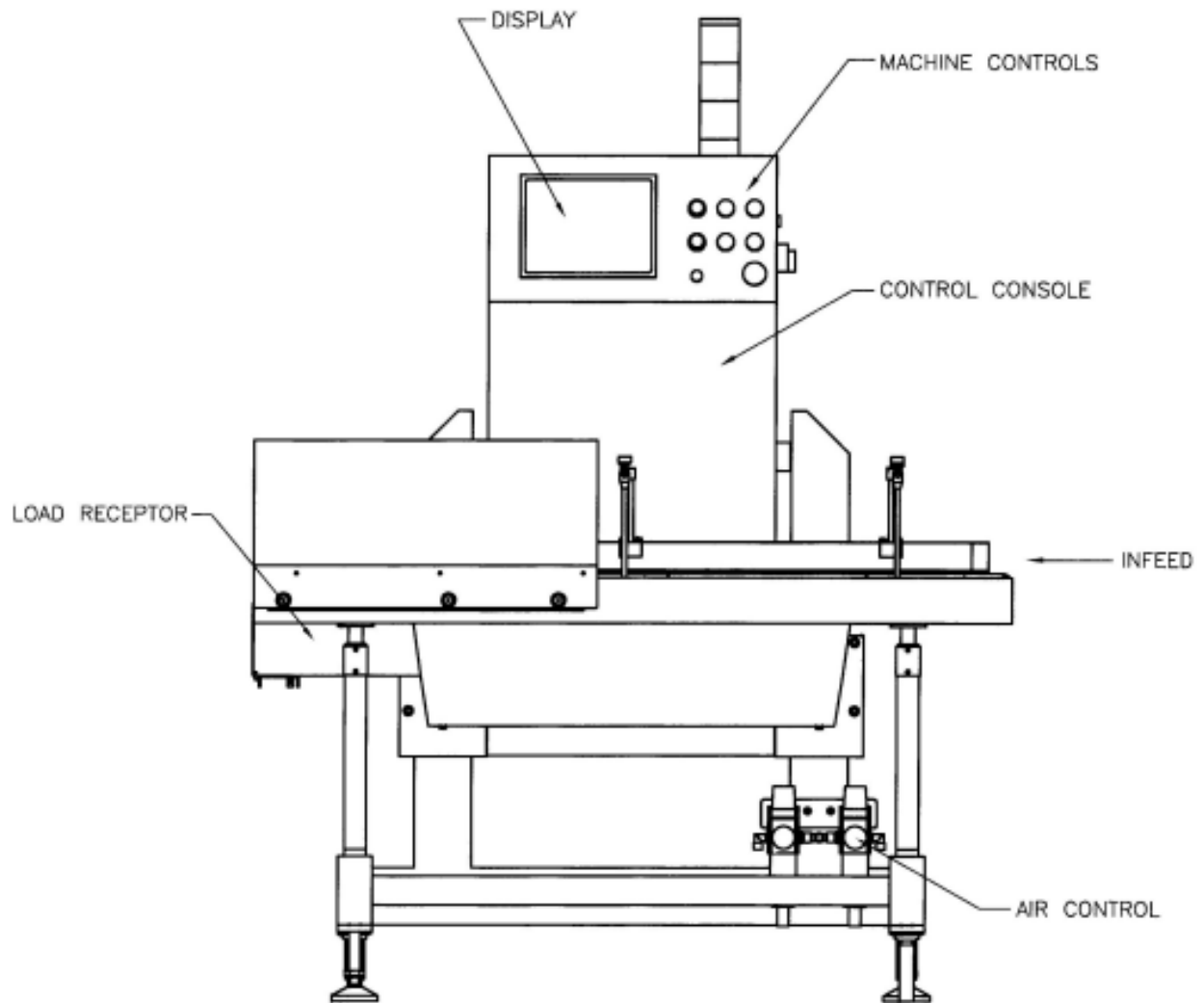
FIGURE 6/14G/8 – 1



Herbert Model Gemini Automatic Catchweighing Instrument

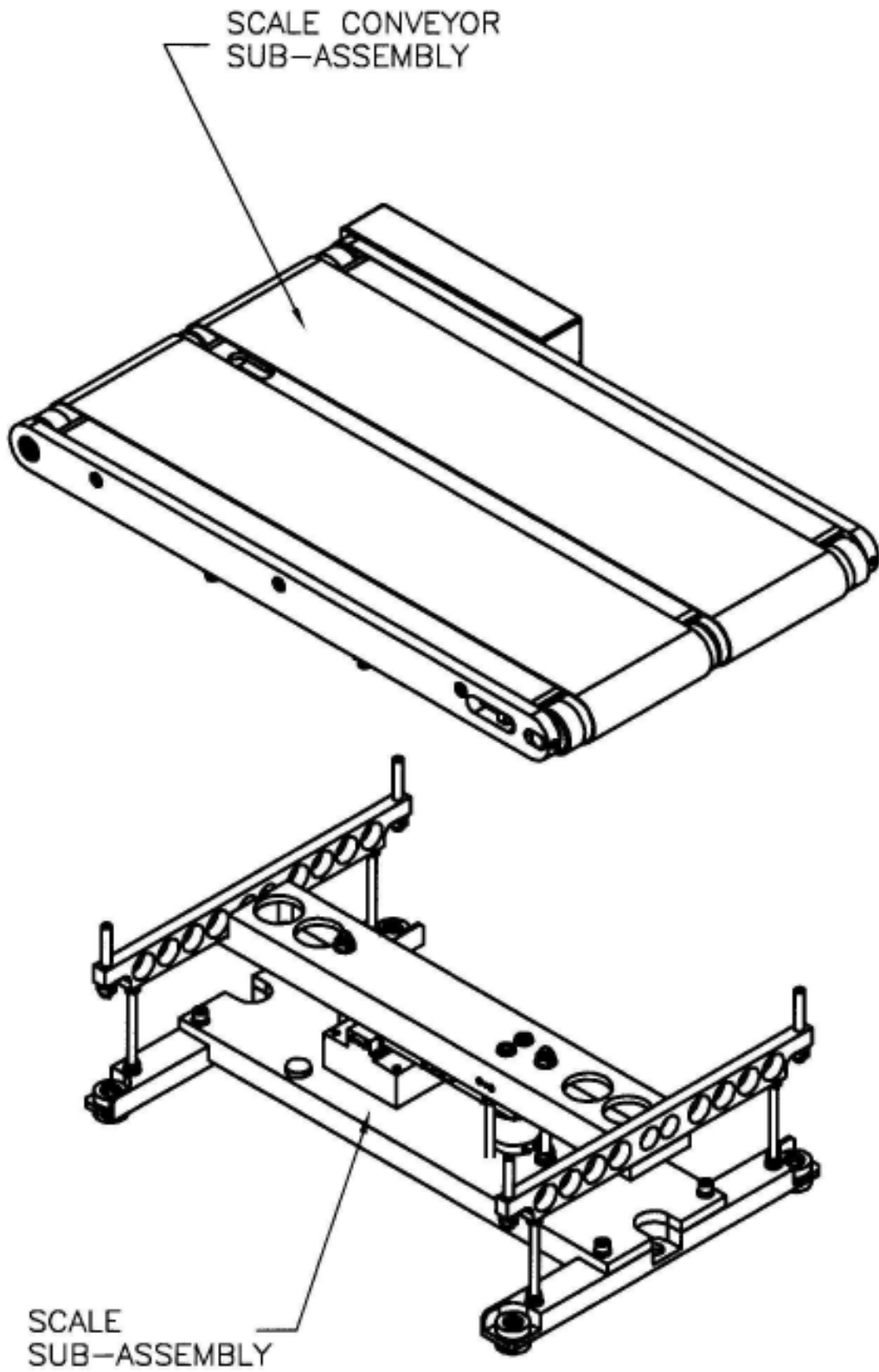
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FIGURE 6/14G/8 – 2



Herbert Model Gemini Automatic Catchweighing Instrument

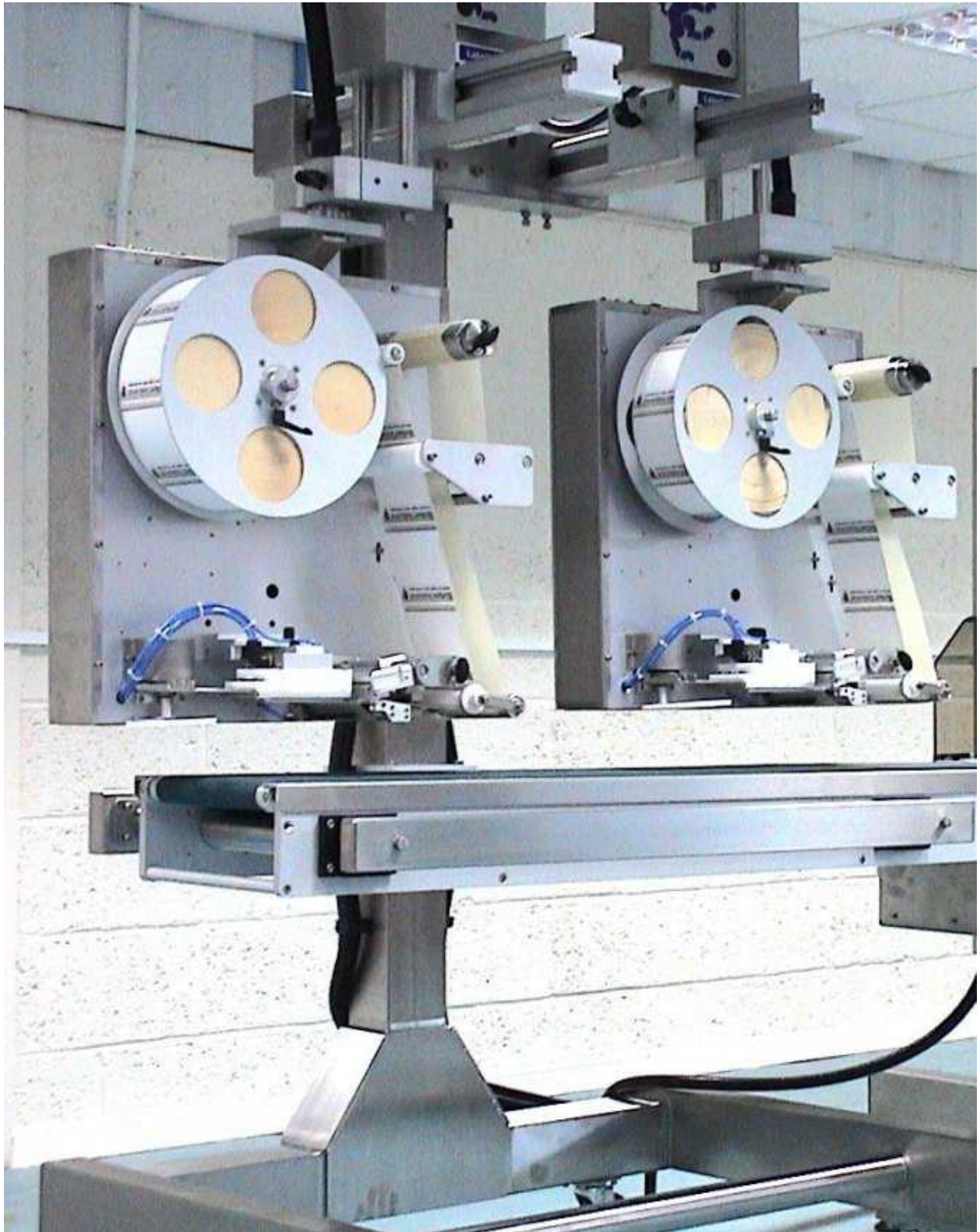
FIGURE 6/14G/8 - 3



Weighing Unit Sub-assemblies

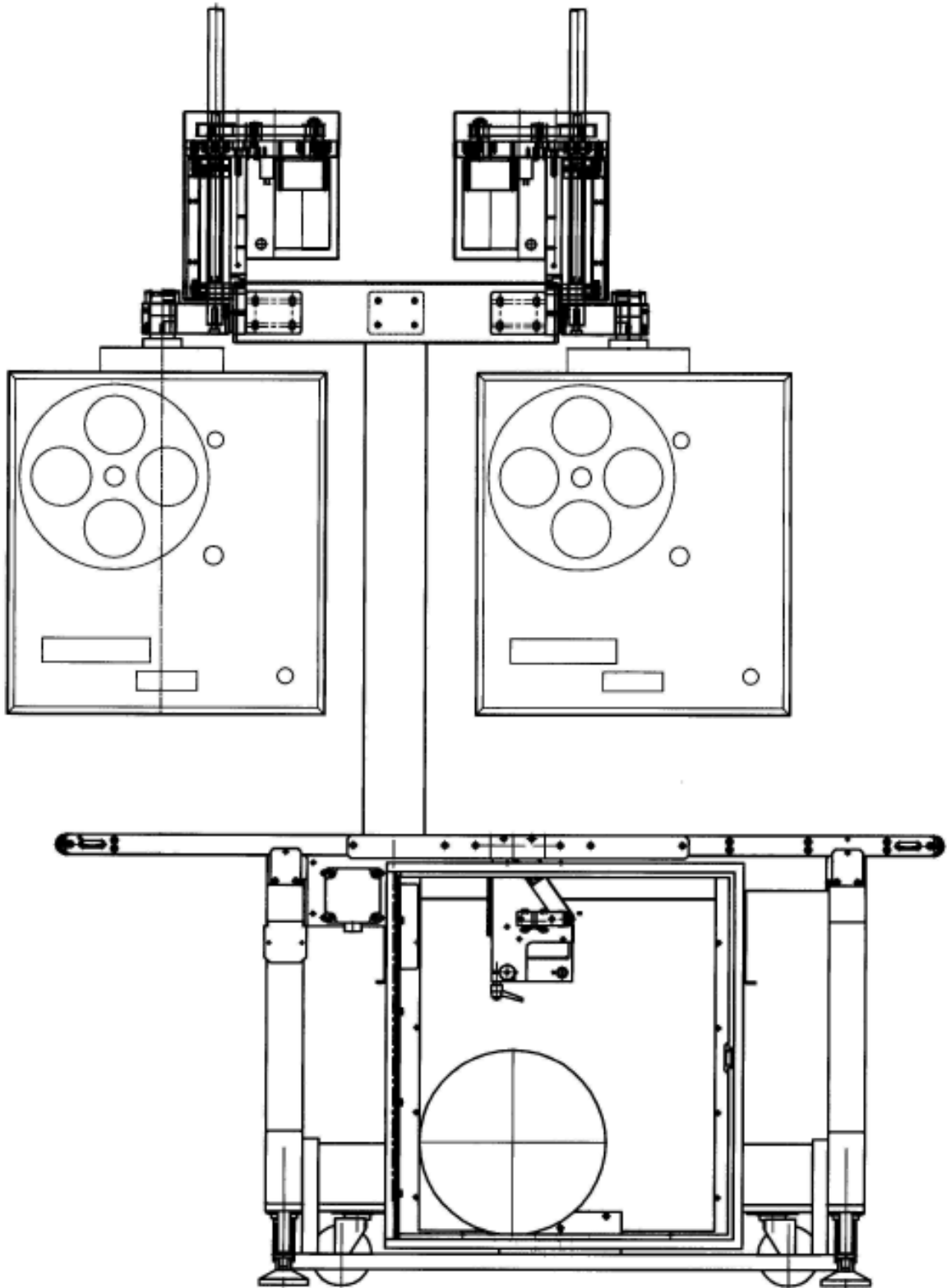
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FIGURE 6/14G/8 – 4



Typical Twin Labeller Configuration

FIGURE 6/14G/8 – 5



Typical Twin and Base Labeller Configuration

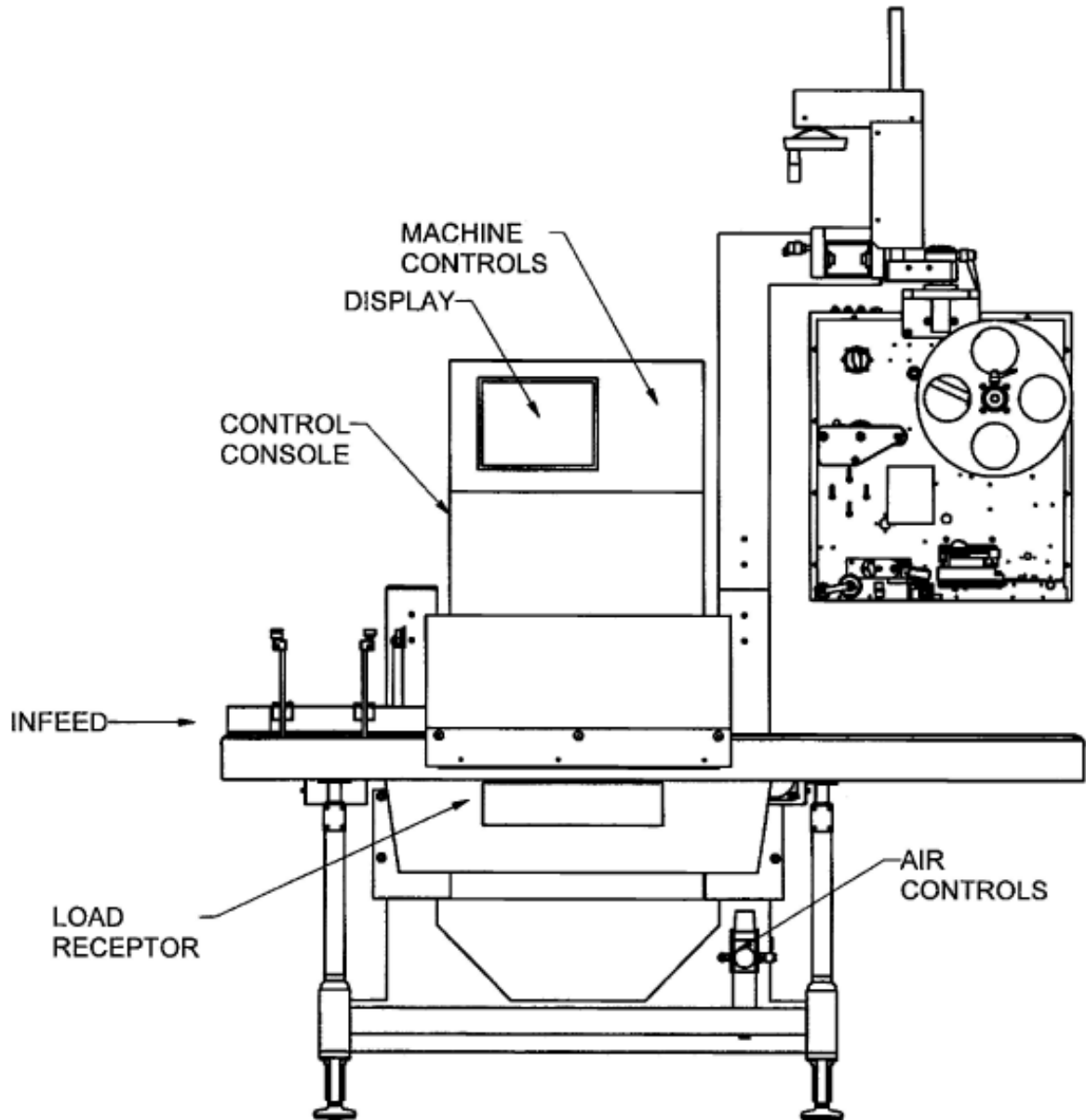
FIGURE 6/14G/8 – 6



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FIGURE 6/14G/8 – 7



Herbert Model Gemini Solo Automatic Catchweighing Instrument