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: 14 June 2024
Original Date of Issue: 27 July 2000

Certificate 1584

Overseas Certificate No: 5/6A/91A

This certifies that the Compac MR40P, Instrument described overleaf has been approved as suitable for trade use subject to any conditions stated in the schedule:

Summary of Document History		
Variant	**Details**	**Issue Date**
-	Certificate of approval issued for Compac fuel dispensers - Model MR series, MMR series, PR series, PPR series, L series and LL series.	17/07/2000
1	Include Compac LPG fuel dispensers – Model PR-LPG-D, Model L-LPG-D, Model MD2LPG, Model MD6LPG and Model MP6LPG.	07/05/2001
2	The pattern and its variants use COM 25 flowmeter	04/09/2003
3	The pattern and its variants use an external centrifugal or vane type pump installed in flooded suction and with the supply tank installed above ground.	18/09/2007
4	The pattern and its variants use Bennett model SB100 flowmeter.	24/02/2009
5	Model MR400S fuel dispenser system installed at HNZ Heliport in New Plymouth site to use Blackmer model XL2B to replace submersible turbine pump, install additional remote nozzle and Compac part F-NOZL-HLD-MECH nozzle holster.	21/08/2009
6	Model MR160P fuel dispenser Sl.no 09D-13037501 installed at the Canterbury Aero Club, Christchurch to use control system to allow delivery to be taken through 2 outlets.	12/10/2010
7	Parker Hannifin model IN FDW3525 filter (or other alternative filters) installed downstream of the meter and outside the fuel dispenser housing.	10/07/2012
8	Dual hose Compac models to dispense multiple products, Adblue one hose and diesel/biodiesel from the second hose.	10/07/2012
9	Include Compac Laser Series and Master Series LPG dispensers.	07/05/2015
10	Compac Adblue dispensers to use Compac model V50 mass flowmeters.	07/05/2015
11	The pattern and its variants to use C5000 calculator/indicator unit and Compac model CU-3000-3CH pulse generator.	07/02/2020
12	The pattern and its variants to use the aluminium version of Compac Model COM-50, COM-125 and COM-250 flowmeters	01/09/2023
13	Variant approves the model MR800S bulk delivery system	02/10/2023
14	The variant approves new sealing method used to secure the meter and pulse generator of the Compac Model COM-50, COM-125 and COM-250 flowmeters	14/06/2024

S R Bobbala **J Hattingh**

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:	Liquid Measuring Instrument
Make:	Compac
Model:	MR40P
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand.
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Display capacity:	999.99 L
Display interval:	0.010 L
Minimum Delivery:	2 L
Maximum flowrate:	40 L/min
Minimum flowrate:	4 L/min

Description:

The Compac Industries model MR40P is an attendant-operated liquid fuel dispenser. The fuel dispenser may be interfaced to any approved compatible self-service device operating in attended or unattended service mode.
The instrument may dispense hydrocarbons with 0.5 to 20mPa,s (at 20 C).

Certain other models include the following: -

1) Model MR80P with a maximum flow rate of 80 L/min and a minimum measured quantity of 2 L.

2) With the calculator/indicator displaying volume (litres) only, provided that the indicator carries a notice stating
" NOT FOR RETAIL SALES "

3) In alternative housing e.g. model L40P, LL40P, MMR40P, PR40P and PPR40P

4) With up to four metering systems in the same housing, e.g. model MR40PQ

5) With a pre-set facility, including a price pre-set panel and a two-stage flow control valve, e.g. model MR40P-P

6) With one or more compatible submersible turbine pumps (STPs) incorporate a leak detection system. The STP replaces the equivalent components (i.e. motor, pump/strainer/gas separator, and associated pipe work) in any fuel dispenser covered by this approval. The model number of the pattern (MR40P) would then become model MR40S. More than one fuel dispenser may be connected to the same submersible turbine pump

7) With hydraulics modified for use with the COM-125 meter and two pumps connected in parallel. A pump selector switch is connected in the vicinity of the nozzle hang-up which enables the use of either one or two pumps depending on the flow rate required.

i) Maximum flow rate, Qmax is 80 L/min with single pump selected or up to 160 L/min with two pumps selected.
ii) Minimum flow rate, Qmin is 15 L/min.
iii) Minimum measured quantity is 10 L

8) With hydraulics modified for use with the COM-250 meter and with a compatible submersible turbine pump incorporating a leak detection system. The volume indicator is set for 0.1 L scale interval.

i) Maximum flow rate, Qmax is 400 L/min
ii) Minimum flow rate, Q min is 20 L/min
iii) Minimum measured quantity is 20 L

Table 1 shows the various models and configurations.

COMPONENTS

1) A Bennet type 75 model 190701 integral pump/strainer/gas separator.

2) A Compac gas detection system fitted to the pump/strainer/gas separator.

3) A Compac model COM 50 rotary vane positive displacement flowmeter with integral magnetic drive pulse generator.

4) A Compac model C4000 calculator/indicator.

5) A ZVA or any other approved compatible nozzle.

6) A Xide 16 mm nozzle.

Compac Model C4000 Calculator/Indicator

The Compac Model C4000 calculator/indicator as approved in NSC Certificate of Approval No 377 interfaced to a Compac model CU-3000-3CH pulse generator or any approved measurement transducer generating compatible pulse output proportional to volume throughput, for use in any approved liquid measuring system. The pattern is approved without enclosure and may be mounted in any housing designed for a multi-product fuel dispenser.

The model C4000 comprises a processing circuit board and a separate indicator circuit board. Each processing board may be connected with up to three single or double-sided indicator boards.

The indicator board has a five digit liquid crystal display (LCD) for volume and another for total price; three separate four digit unit price LCDs are provided, one for each grade of fuel, and three separate electromechanical totalisers.

The model C4000 incorporates a pre-set control facility for use with approved fuel dispensers incorporating a compatible pre-set control valve.

The field of operation is determined by a number of characteristics including:

i) Maximum input frequency 1500Hz

The indicators display the following values:

i) Volume to 999.99 L
ii) Unit price to 9.999 $/L
iii) Total price to $999.99

VARIANTS

With certain alternative configurations of liquid crystal displays (LCD), and with the electromechanical totalisers separate from the main indicator board, as follows

i) Five digit LCD (displays volume to 999.99 L, price to $999.99 and unit price to9.999 $/L) and with only a single unit price display.

ii) Six digit LCD (displays volume to 9999.99 L, price to $9999.99 and unit price to 9.999 $/L) and with only a single unit price display.

iii) Six digit LCD (displays volume to 9999.99 L). This commercial version is without price and unit price displays and the instrument carries a notice stating " NOT FOR RETAIL SALES " or similar wording.

METROLOGICAL MARKINGS

The following information should be placed on a data plate affixed to the measuring instrument:-

Manufacturer's identification mark or trade mark designation.

Pattern Approval No
Serial number.
Year of manufacture.
Minimum measured quantity (MMQ)
Maximum flowrate (Qmax)
Minimum flowrate (Qmin)
Maximum pressure
Minimum pressure
Liquids
Temperature range.
Table 1. Masters/Premiers/Lasers and legend Series

FRAME TYPE

MR	1 inlet, 1computing unit.
MMR	2 inlets, 1 computing unit
PR	1 inlet, 1 computing unit.
PPR	2 inlets, 1 computing unit.
L	1 inlet, 1 computing unit.
LL	2 inlets, 1 computing unit.

MAXIMUM FLOWRATE L/MIN

40	4-40 l/min with COM50 meter.
80	8-80 l/min with COM50 meter.
160	16-160 l/min with COM 125 meter.
400	40-400 l/min with COM250 meter.

PUMP TYPE

P	Self-contained Bennett pump within the fuel dispenseer housing.
S	Submersible turbine pump.

SINGLE OR DUAL OUTLET

(blank)	1 hose per inlet
D	2 hoses single inlet.
Q	4 hoses, two inlets. One display per side. Only one hose per side will operate at any time.
QA	4 hoses, two inlets. One display per hose. All hoses may operate together.

OPTIONS (may be blank)

-P, -C, -PP, -CK
Various options including preset, card-reader, PIN pad, PIN pad with receipt printer

The model MMR80SQ would be 4-40 l/min, 4 hose, and two inlet fuel dispenser requiring an external pump. Only one hose per side may operate at any time, and there is only one display per side.

MULTI-HOSE FUEL DISPENSERS

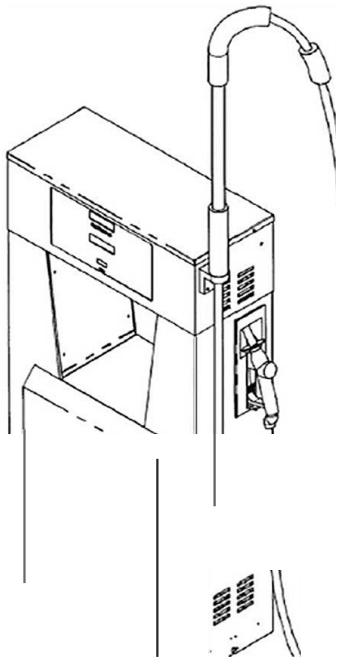
Series	Model	Features
Legend	MD2	2 hose, 1 inlet, 1 display per side, external pump.
	MP2	2 hose, 1 inlet, 1 display per hose, internal pump.
	MD4	4 hose, 2 inlet, 1 display per side, external pump.
	MP4	4 hose, 2 inlet, 1 display per side, internal pump.
	MD4N	4 hose, 2 inlet, 1 display per side, external pump. Narrow frame.
	MP4N	4 hose, 2 inlet, 1 display per side, internal pump. Narrow frame.
	MD6	6 hose, 3 inlet, 1 indicator per side, 1 display per side, external pump.
	MP6	6 hose, 3 inlet, 1 indicator per side, 1 display per side, internal pump.

Sealing:

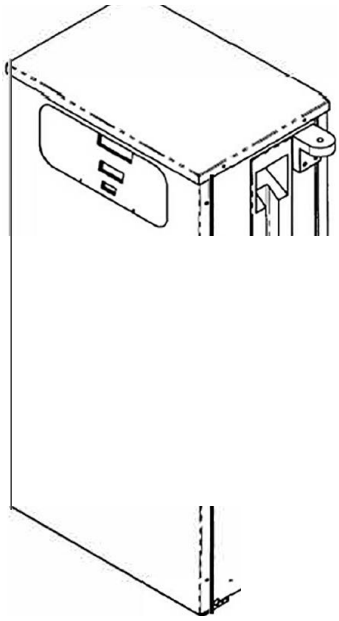
The mechanical calibrator for the meter and the K-factor switch are both sealed with approved type seals. These seals shall carry the Mark of Verification.

Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

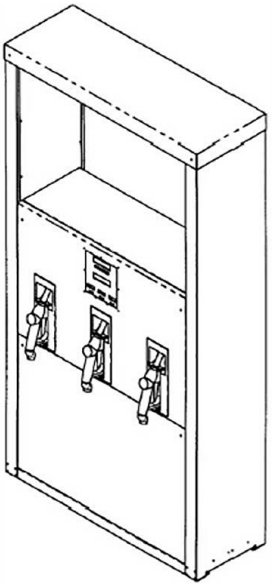
Laser Model



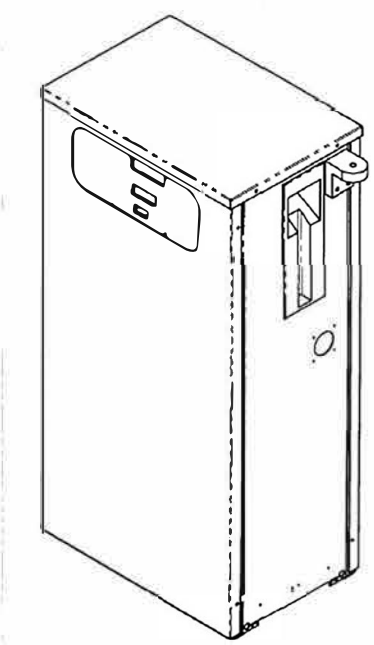
Premier Model



Legend Model



Master Model



SCHEDULE

Variant: 1584.1

Current Date of Issue: 07 May 2001

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR40P
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand.
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Display capacity:	999.99 L
Display interval:	0.010 L
Minimum Delivery:	2 L
Maximum flowrate:	40 L/min
Minimum flowrate:	8 L/min

Description:

This variant approves the use of the Compac model Premier PR-LPG-D attendant-operated liquefied petroleum gas (LPG), fuel dispenser for motor vehicles, over a flow rate range of 8 L/min to 40 L/min.

The instrument may be used in attended or unattended self-serve operation and may be used with any approved compatible fuel dispenser control.

The Premier model PR-LPG-D LPG dispenser is approved with the following components or features:

Two Compac model VAPCOM vapour elimination devices.

Two temperature measuring devices.

Two density measuring devices.

Two Compac model COM50 positive displacement LPG flowmeters each with an integral pulse generator.

Two Compac model C4000 LPG price-computing calculator/indicators.

Pre-set facility may be fitted.

Approved Models and Configurations

Pre-set facility may be fitted.Premier PR-LPG single hose fuel dispenser

Premier PR-LPG-D dual hose fuel dispenser

Laser L-LPG-D dual hose LPG fuel dispenser

Legend MD2LPG dual hose LPG dispenser

Legend MD6LPG six hose multi-product dispenser, one hose each side for LPG dispensing

Legend MP6LPG six hose multi-product dispenser, one hose each side for LPG dispensing.

Metrological Markings

The following information should be placed on a data plate affixed to the measuring instrument:-

Manufacturer's identification mark or trade mark designation.
Serial number.
Year of manufacture.
Minimum measured quantity (MMQ)
Maximum flowrate (Qmax)
Minimum flowrate (Qmin)
Maximum pressure
Minimum pressure
Liquids
Temperature range.

Components: Compac COM 50 Flowmeter
C4000 Indicator
Compac VAPCOM Air Eliminator

Sealing: The mechanical calibrator for the meter and the K-factor switch are both sealed with approved type seals. These seals shall carry the Mark of Verification

Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

SCHEDULE

Variant: 1584.2

Current Date of Issue: 04 September 2003

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR40P
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand.
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Display capacity:	999.99 L or 9999.99 L
Display interval:	0.010 L
Minimum Delivery:	2 L
Maximum flowrate:	80 L/min
Minimum flowrate:	4 L/min

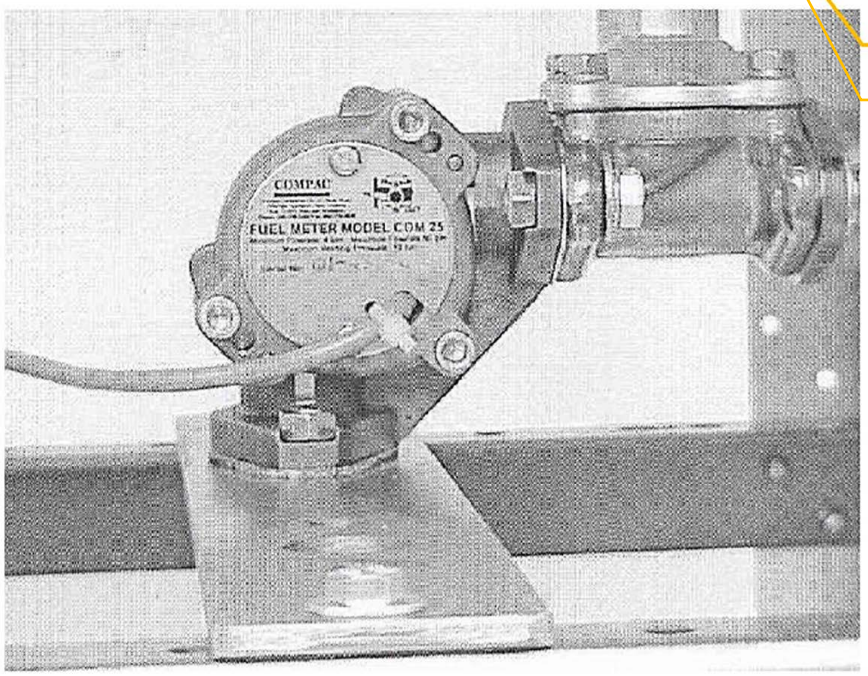
Description:

This variant approves the use of the Compac Industries model Com 25 flowmeter. The meter is a rotary vane type meter of similar design to the other Com series of meters. The meter has a flowrate range of 4 to 80 L/min.

The meter may be used with all models listed in this certificate, up to a maximum flowrate of 80 L/min

Components:	Com 25 Flowmeter
Sealing:	The mechanical calibrator for the meter and the K-factor switch are both sealed with approved type seals. These seals shall carry the Mark of Verification.

Compac Com25 Flowmeter



Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

SCHEDULE

Variant: 1584.3

Current Date of Issue: 18 September 2007

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR40P, MR400S
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Display capacity:	9999.99L or $9999.99
Display interval:	0.01
Class:	0.5

Description:

This variant allows the pattern and its variants to be used with an external centrifugal or vane pump in flooded suction and with the supply tank above ground. The supply tank is fitted with a low level device which prevents measurements of the fuel dispenser when the device is activated.

COMPAC Model MR400S Bulk Delivery System
(Refer table 1 in Certificate 1584 for various models and configurations)
This variant also allows the following options in respect of the COMPAC Model MR400S Bulk Delivery System

1. A SHIP hydropneumatic accumulator , or compatible device (*) may be connected downstream of the flowmeter to accommodate for the expansion and contraction of fuel , and to absorb any high liquid pressure peaks that may occur during deliveries.
2. A Parker model E321G4010 50mm solenoid control valve, or other compatible valve , is connected upstream of the hose for controlling the delivery.
3. A TODO-MATIC 50mm dry break coupling or other compatible (*) dry break coupling is fitted to the end of the hose and acts as a transfer device , which defines the start and finish of the measured volume , and is designed to maintain the hose full of liquid.
4. An optional electronic overfill protection cable and connector may be provided at the side of the dispenser which connects to the tank level sensing device and which stops the pump when the receiving tank is full.

(*) Compatible is defined to mean that no additions/changes to hardware or software are required for satisfactory operation of the complete system including all checking facilities.

METROLOGICAL MARKINGS

The following information should be placed on a data plate affixed to the measuring instrument:-

Manufacturer's identification mark or trade mark designation.

Pattern Approval No
Serial number.
Year of manufacture.
Minimum measured quantity (MMQ)
Maximum flowrate (Qmax)
Minimum flowrate (Qmin)
Maximum pressure
Minimum pressure
Liquids
Temperature range.

Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

Sealing: The calculator/indicator has provision for sealing access to the calibration.

Mark of Verification:	An approved, adhesive destructible label placed in a prominent position may take a mark of verification.
Temperature:	-25 degree celcius to 55 degree celcius

SCHEDULE

Variant: 1584.4

Current Date of Issue: 24 February 2009

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR40P
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Display capacity:	999.99 L or 9999.99 L
Display interval:	0.010 L
Class:	0.5
Minimum Delivery:	2 L
Maximum flowrate:	40 L/min
Minimum flowrate:	4 L/min

Description:

VARIANT 4:

This variant approves the use of the Bennett model SB100 flowmeter. The meter is a four-piston positive displacement meter. The meter has a flowrate range of 4 to 40 L/min.
The meter may be used on all models listed in this certificate, up to a maximum flowrate of 40 L/min.

METROLOGICAL MARKINGS

The following information should be placed on a data plate affixed to the measuring instrument:-

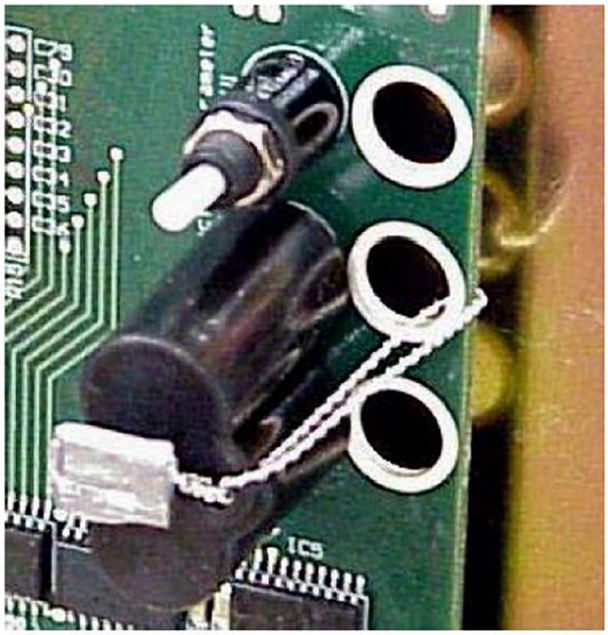
Manufacturer's identification mark or trade mark designation.
Pattern Approval No: MCA1584.4
Serial number.
Year of manufacture.
Minimum measured quantity (MMQ)
Maximum flowrate (Qmax)
Minimum flowrate (Qmin)
Maximum pressure
Minimum pressure
Liquids
Temperature range.

Sealing:	The cover over the K-factor switch is sealed by means of a lead and wire (or similar) type seal through the holes provided. Removal of this seal deems the instrument unstamped. See photo.
Mark of Verification:	The lead seal used for sealing shall carry a mark of verification.

Flowmeter

Bennet Type SB-100 Model N7235-04 Flowmeter

Sealing K-factor switch



Sealing of K-factor Switch

SCHEDULE

Variant: 1584.5

Current Date of Issue: 21 August 2009

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR400S
Submitter:	Carlyon Civil Construction Limited
Display capacity:	9999.99L or $9999.99
Display interval:	0.01L
Class:	0.5
Minimum Delivery:	20 L
Maximum flowrate:	400 L/min
Minimum flowrate:	40 L/min
Conditions of Approval:	1. This variant is restricted to the pattern installed at HNZ, New Plymouth site. 2. Adjacent to the nozzle holsters a notice stating "Do not lift nozzle if lamp flashing" or a similar wording must be shown. 3. It is the fuel company and Heliport Manager's responsibility to ensure that on an event the tank runs out of fuel, the immediate delivery after priming the pump shall not be used for trade transactions. The priming of the pump shall be carried only by authorised person. 4. MAPSS reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Description (VARIANT 5):

The following variants are allowed:
(i) A Blackmer model XL2B pump to replace an existing submersible turbine pump.
The Blackmer is a positive displacement rotary pump of 2-inch port size and have flanged ports with a supply tank under ground. The pump is fitted with a LC air eliminator to restrict any air from entering the flowmeter.
(ii) To install a separate remote nozzle hosted on a remote holster in addition to the existing nozzle hosted on the flowmeter system. This set up allows dispensing fuel from either nozzle depending on proximity to the helicopter. The nozzles are connected in such a way to prevent dispensing from both nozzles at the same time. The lifting of the second nozzle when the first is already in use will result in the disconnection of the signal which caused the dispenser to stop the delivery. See wiring diagram.
(iii) Replace existing nozzle holster with Compac part F-NOZL-HLD-MECH nozzle type. This prevents any user from holding the switch in the hung position and lifting the nozzle to deliver the fuel.

METROLOGICAL MARKINGS

The following information should be placed on a data plate affixed to the measuring instrument:-

- Manufacturer's identification mark or trade mark designation.
- Pattern Approval No MCA 1584.5
- Serial number.
- Year of manufacture
- Minimum measured quantity, Vmin (L)
- Maximum flow rate, Qmax (L/min)
- Minimum flow rate, Qmin (L/min)
- Maximum pressure of the liquid, Pmax (kPa)
- Minimum pressure of the liquid, Pmin (kPa)
- Temperature range (°C)
- Accuracy Class 0.5

Components:

- A Blackmer model XL2B pump
- LC air eliminator
- Compac part F-NOZL-HLD-MECH nozzle type

Sealing:

- The cover over the K-factor switch is sealed by means of a lead and wire (or similar) type seal through the holes provided.
- The COM type flowmeter shall be secured to the mounting frame from swapping by means of passing a wire terminating into a lead plug through a hole in the web of the meter and then around the mounting frame.

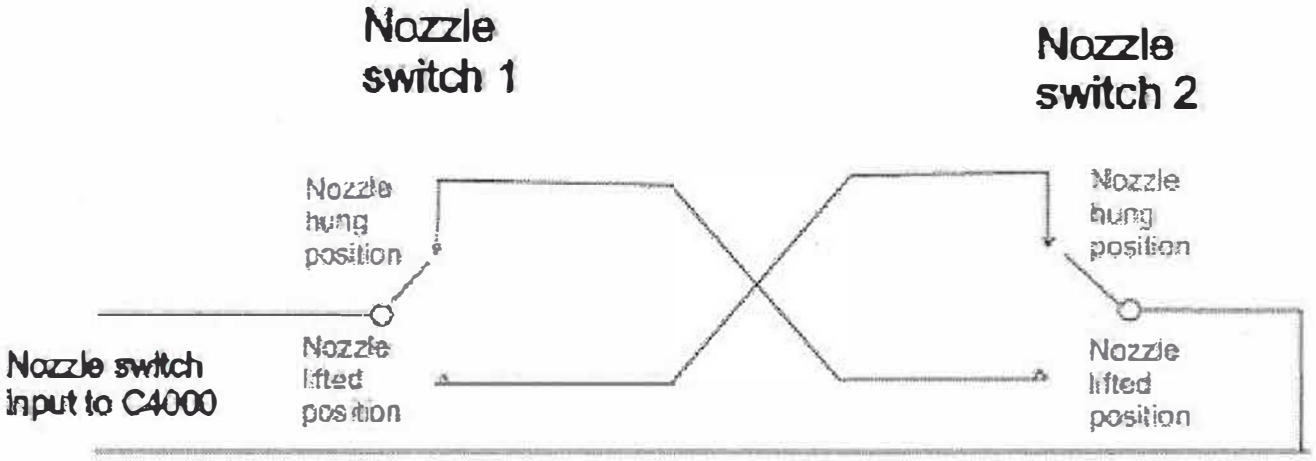
Removal of this seal deems the instrument unstamped (see photos).

Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

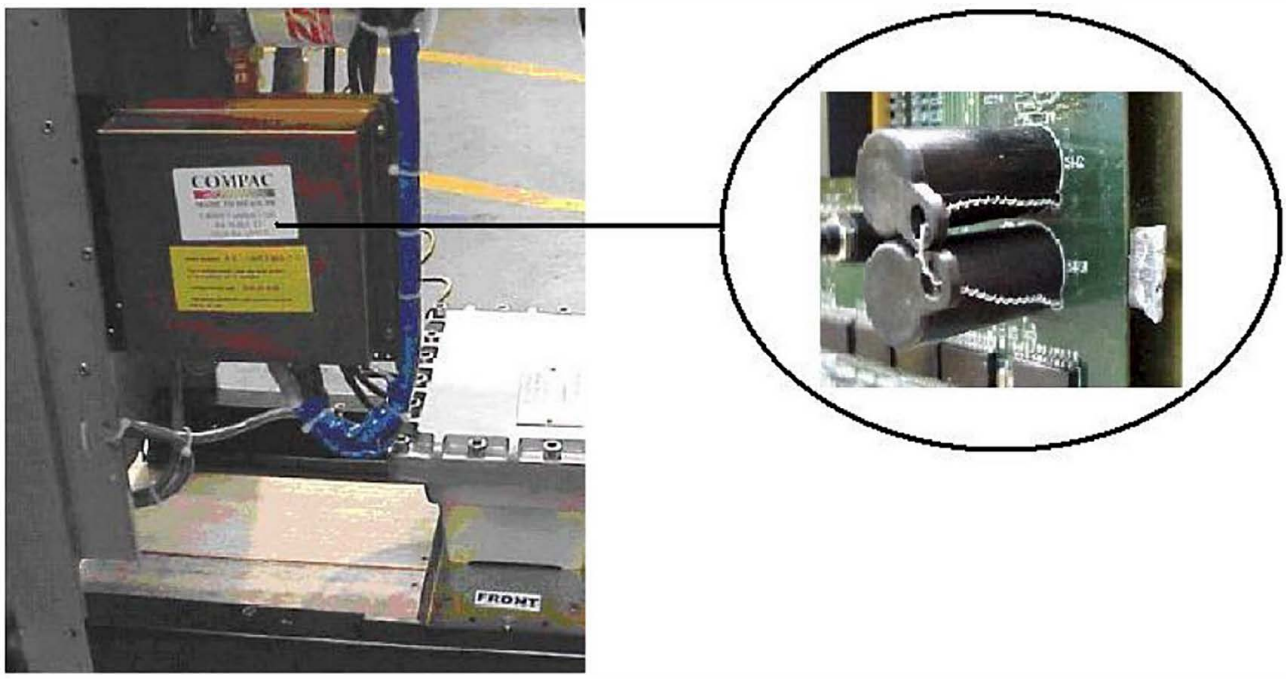
Mark of Verification:

A lead seal used for sealing shall take a mark of verification.
Removal of this seal deems the instrument unstamped.

Wiring Diagram

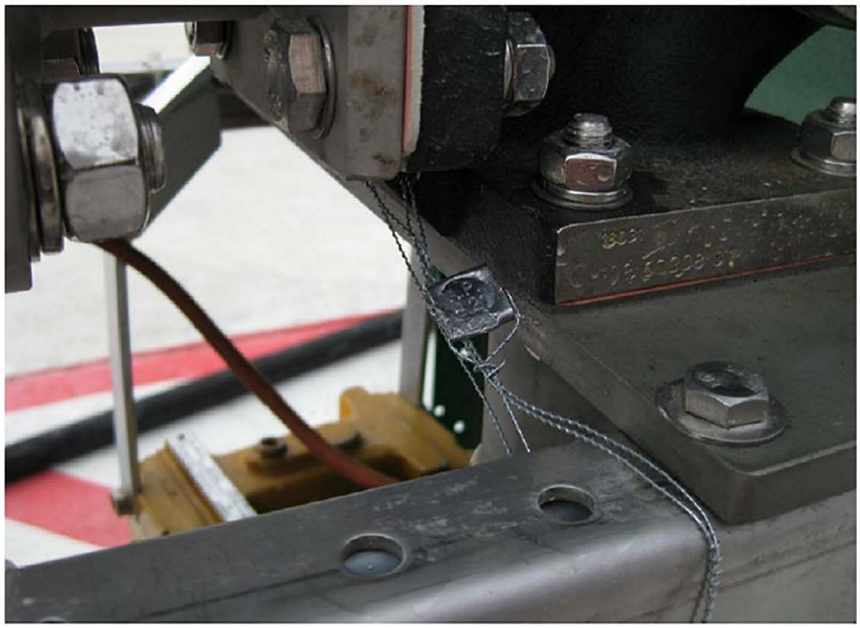


Sealing Photo-1

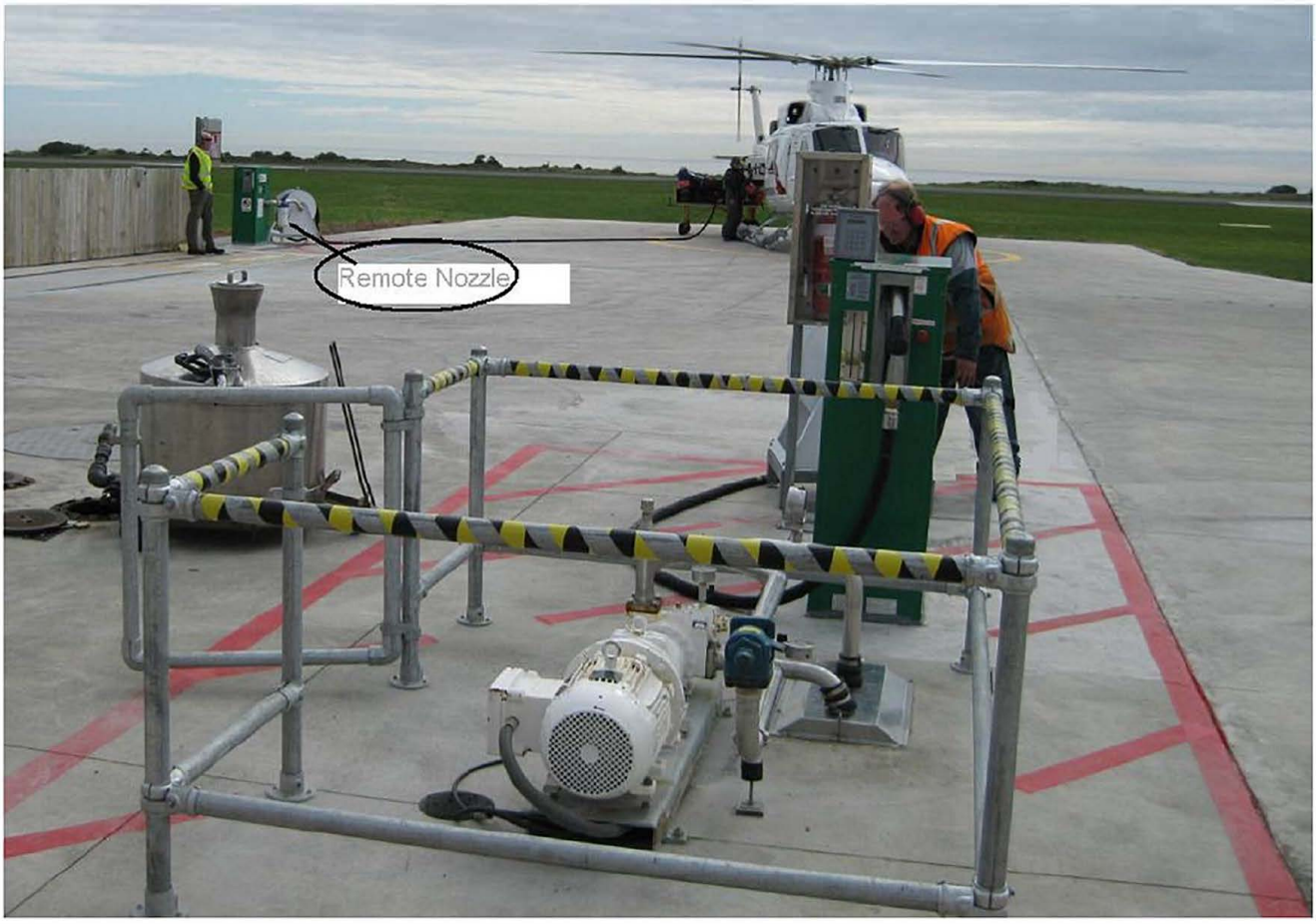


Location of K-factor switch and sealing provision

Sealing Photo-2 (Sealing COM 250flowmeter to the frame of the dispenser)



Flowmeter System setup



SCHEDULE

Variant: 1584.6

Current Date of Issue: 12 October 2010

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR160P
Manufacturer:	Salter Weigh-Tronix, West Midlands, United Kingdom
Submitter:	Gilbarco (NZ), Christchurch
Conditions of Approval:	1. This variant is restricted to the Model MR160P (sl. 09D-13037501) installed at the Canterbury Aero Club, Christchurch. 2. MAPSS reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

Description:

VARIANT 6

The variant allows the model MR160P fuel dispenser to use a control system that allows a delivery to be taken through 2 outlets.
Outlet 1 connects to a hose reel fitted with a ZVA nozzle and used to re-fuel an aircraft
Outlet 2 is connected to a hose fitted with a ToDO-MATIC 50 mm dry coupling (or other compatible dry break coupling) and is used for filling a fuel tanker.

Components include:

1. Solenoid Valve: The system uses two ADF – Electrovanne 2/2 avec fuel control solenoid valves (or other compatible solenoids) that are installed on the delivery side, downstream of the filter.

2. Selection Switch: This is a simple twist select type switch and is manually operated either to select outlet 1 ("Reel") or outlet 2 ("Truck") for fuel deliveries. The use of the Selection Switch is discrete, meaning only one solenoid valve can be selected at a time. The switch if parked in the mid position fails to complete the circuit and no solenoid valve operates, when the switched to either outlet, the other outlet is electrically shut and there is no manual override.

METROLOGICAL MARKINGS

The following information should be placed on a data plate affixed to the measuring instrument:-

- Manufacturer's identification mark or trade mark designation.
- Pattern Approval No
- Serial number.
- Year of manufacture
- Minimum measured quantity, Vmin (L)
- Maximum flow rate, Qmax (L/min)
- Minimum flow rate, Qmin (L/min)
- Maximum pressure of the liquid, Pmax (kPa)
- Minimum pressure of the liquid, Pmin (kPa)
- Temperature range (°C)
- Accuracy Class 0.5

Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

Sealing:

- The cover over the K-factor switch is sealed by means of a lead and wire (or similar) type seal through the holes provided.
The COM type flowmeter shall be secured to the mounting frame from swapping by means of passing a wire terminating into a lead plug through a hole in the web of the meter and then around the mounting frame.
Removal of this seal deems the instrument unstamped.

Mark of Verification: A lead seal used for sealing shall take a mark of verification. Removal of this seal deems the instrument unstamped.

ADF Solenoid Valve

Selection Switch (with Padlock)

SCHEDULE

Variant: 1584.7

Current Date of Issue: 10 July 2012

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR Series & other
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand.
Submitter:	Compac Industries Ltd, Auckland, New Zealand.

Conditions of Approval:

1. As detailed in Certificate 1584 and its variants.
2. MAPSS reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.
3. The filter unit must be sealed using a wire terminating into a lead plug to prevent any drainage of the product between the inlet of the filter and the nozzle of the fuel dispenser.
4. In case the filter is changed or the seal is removed to draw the product for inspection of filter, the system must be primed with product up to the nozzle, and then the filter is to be resealed.
5. If a filter is installed or removed, the dispenser must be retested and verified by an Accredited Person who is accredited under the Weights and Measures Act 1987 Section 30A

Description:

VARIANT 7

The variant approves the installation of a Parker Hanniffin (or RACOR) model FDW3525 (*) filter in the downstream of the meter and outside the fuel dispenser housing (Figure 1 & 2, Variant 7).

(*) NOTE: The manufacturer must be consulted for use of other alternative filters.

The filter may be installed on any Compac model dispenser covered under this approval or any of its variants and used with any liquid hydrocarbon for which the dispenser is approved.

Sealing:

(i) The filter must be sealed (see "Conditions of Approval"), and

(ii) As detailed in certificate 1584 and its variants for the dispenser.

Mark of Verification:

The sealing shall take a mark of verification. Removal of this seal deems the instrument unstamped.

Figure 1 - Variant 7 - Typical External Filter Installation

Figure 2 - Variant 7 - Typical External Filter Installation

SCHEDULE

Variant: 1584.8

Current Date of Issue: 10 July 2012

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MMA & LLA
Submitter:	Compac Industries Ltd, Auckland, New Zealand.
Conditions of Approval:	As detailed in Certificate 1584 and its variants.

Description:

VARIANT 8

The variant allows certain dual hose Compac models listed in Table 1 to dispense multiple products, Adblue from one hose and diesel/biodiesel from the second hose.

The software number is 29254, and is displayed when the parameter switch is pushed.

The Compac models handling AdBlue product (figure 1, variant 8) incorporates the following components:
(i) With an external centrifugal or vane type pump installed in flooded suction and with the supply tank installed above ground. The supply tank is fitted with a low level device which prevents measurements when the device is activated.
(ii) The measurement transducer is a Compac model KG-40 mass flowmeter that works on coriolis principle (figure 2, variant 8).
(iii) A hose/nozzle mounted on the side of the dispenser housing. The nozzle used is an Elaflex ZVA 16 mm; the hose used is an Elaflex Adblue 16 mm of 6 metres maximum length.
(iv) A Parker model 7221 direct lift stainless steel solenoid valve is used.

METROLOGICAL MARKINGS

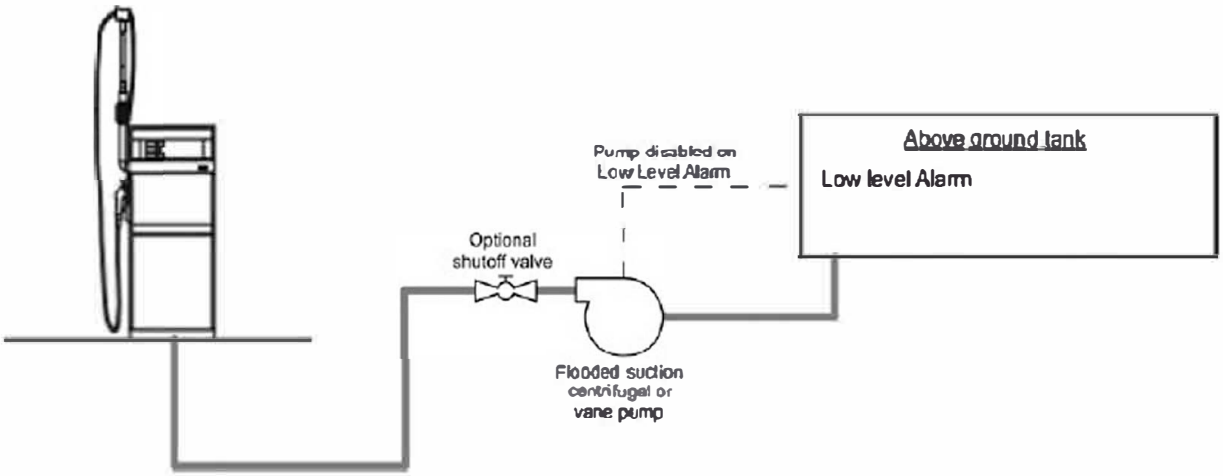
The following information should be placed on a data plate affixed to the measuring instrument:-

- Manufacturer's identification mark or trade mark designation.
- Pattern Approval No
- Serial number.
- Year of manufacture
- Minimum measured quantity, Vmin (L)
- Maximum flow rate, Qmax (L/min)
- Minimum flow rate, Qmin (L/min)
- Maximum pressure of the liquid, Pmax (kPa)
- Minimum pressure of the liquid, Pmin (kPa)
- Temperature range (°C)
- Accuracy Class 0.5
- Dynamic Viscosity (at 25°C) 1.4 mPa.s #

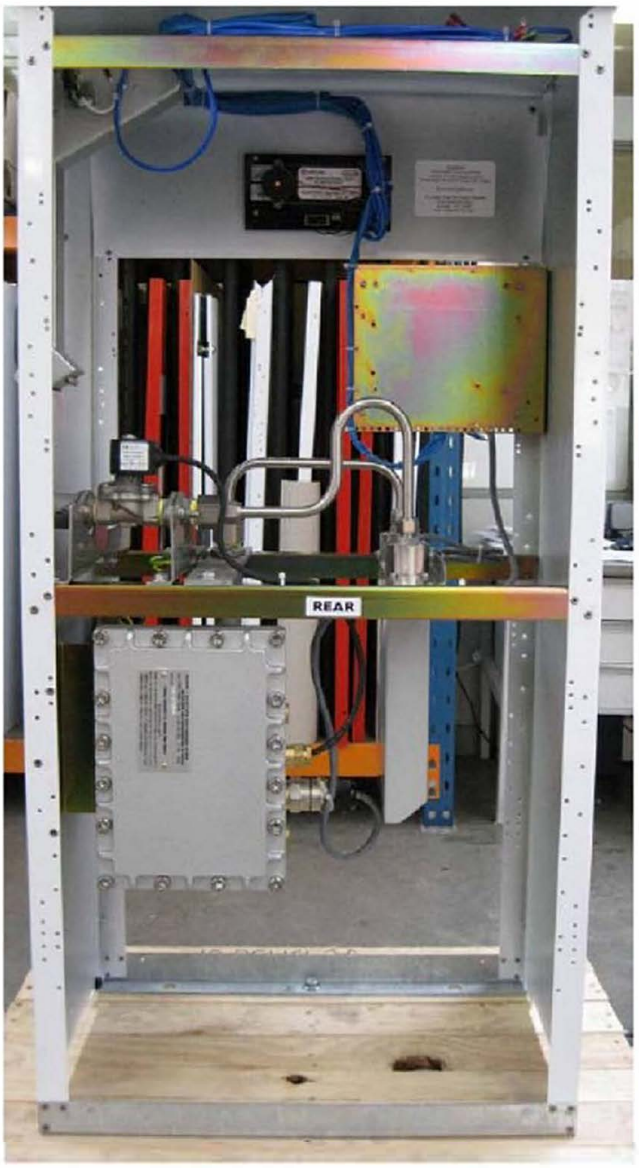
The flowmeter is adjusted to be correct for AdBlue fluid (aqueous urea solution 32.5%) for which it is be verified.

Sealing:	As detailed in certificate 1584 and its variants.
Mark of Verification:	A lead seal used for sealing shall take a mark of verification. Removal of this seal deems the instrument unstamped.

Figure 1 - Variant 8 - Typical Installation of Compac AdBlue Dispensing System



Installation Compac AdBlue Dispensing System



Compac AdBlue Dispenser Hydraulics

Table 1 - Variant 8

TABLE 1 (Variant 8)

Model	Qmin & Qmax (Adblue)	Qmin & Qmax (Diesel/Biodiesel)	Frame Type
MMA30-40S	3 to 30 L/min	4 to 40 L/min	Master frame
MMA30-80S	3 to 30 L/min	8 to 80 L/min	Master frame
MMA30-160S	3 to 30 L/min	16 to 160 L/min	Master frame
LLA30-40S	3 to 30 L/min	4 to 40 L/min	Laser frame
LLA30-80S	3 to 30 L/min	8 to 80 L/min	Laser frame
LLA30-160S	3 to 30 L/min	16 to 160 L/min	Laser frame

Figure 2 - Variant 8 - Compac Model KG-40 Mass Flowmeter

Compac Model KG-40 Mass Flowmeter

SCHEDULE

Variant: 1584.9

Current Date of Issue: 07 May 2015

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	Laser Series & Master Series (LPG Dispensers)
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Conditions of Approval:	1. Trading Standards reserves the right to examine any instrument or component of an instrument purporting to comply with this approval. 2. The verification and subsequent certifications of the instrument must be carried out by Accredited Persons who are accredited under the Weights and Measures Act 1987 Section 30A or an Inspector of Weights and Measures. 3. The pattern marked with this approval number must be constructed as per the manufactures specifications. 4. This Certificate only covers compliance with respects to the relevant sections of the Weights and Measures Act and Regulations and should not be construed as guarantee of compliance with any safety requirements.

Description:

VARIANT 9

The variant approves the following:

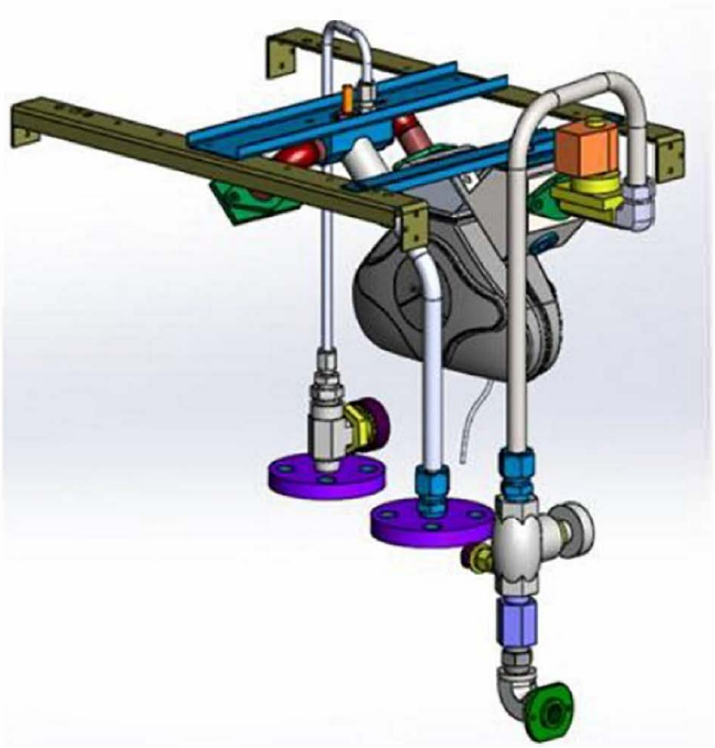
1. Certain Compac models LPG dispensers:
   - Laser Series Models: L-LPG, L-LPGD and LL-LPG.
   - Master Series Models: MRLPG, MRLPGDand MMRLPG.

2. The various models of Compac LPG dispensers are now approved to use Compac model V50 mass flowmeter (Coriolis principle) as an alternative to the COM50 meter.
The V50 flowmeters are provided with a Modbus RS485 output to the calculator/indicator. A CRC checksum safeguards the data.
The V50 flowmeters can detect air and closes the solenoid valve located after the meter. The vapour is then allowed to condense and once the vapour is clear the valve opens and the delivery continues.

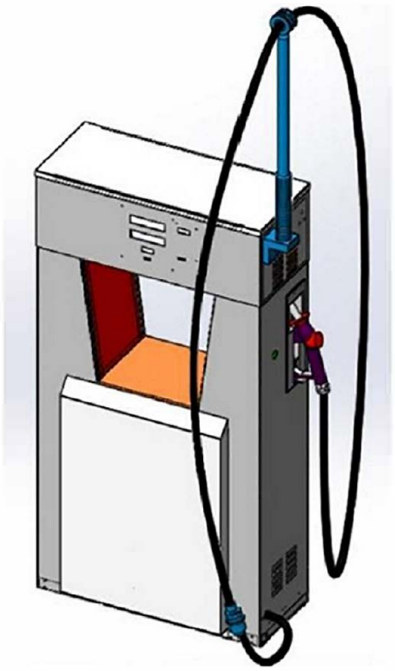
METROLOGICAL MARKINGS
Each measuring system must bear the following information, placed together on a data plate:

Pattern approval No: TS1584
Manufacturer's identification mark or trade mark .....
Manufacturer's designation (model number) .....
Serial number .....
Year of manufacture .....
Maximum flow rate (Qmax) ..... L/min
Minimum flow rate (Qmin) ..... L/min
Minimum measured quantity (Vmin) ..... L (#1)
Maximum operating pressure (Pmax) 1800 kPa
Minimum operating pressure (Pmin) 200 kPa above vapour pressure
Approved for LPG density range (at 15°C) 505 kg/m³ to 570 kg/m³
Maximum temperature of the liquid, Tmax 50°C
Minimum temperature of the liquid, Tmin -10°C
Environmental class class C
(#1) In addition, the minimum measured quantity (Vmin) shall be clearly visible on any indicating device visible to the user during measurement, in the form 'Minimum delivery 2 L'.

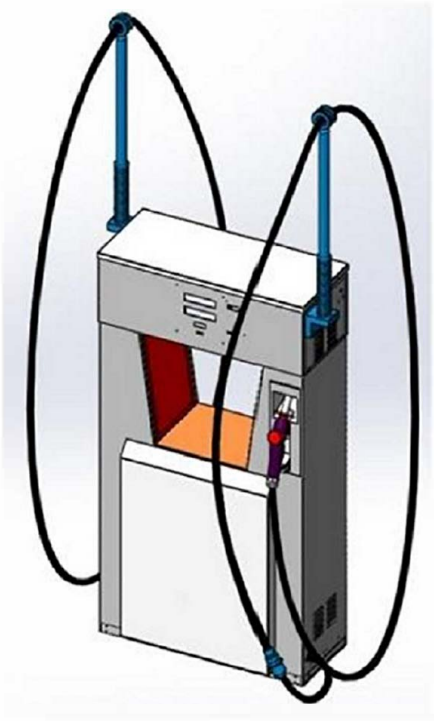
Variant 9 - Figure 1 LPG Hydraulics System showing V50 LPG Flowmeter



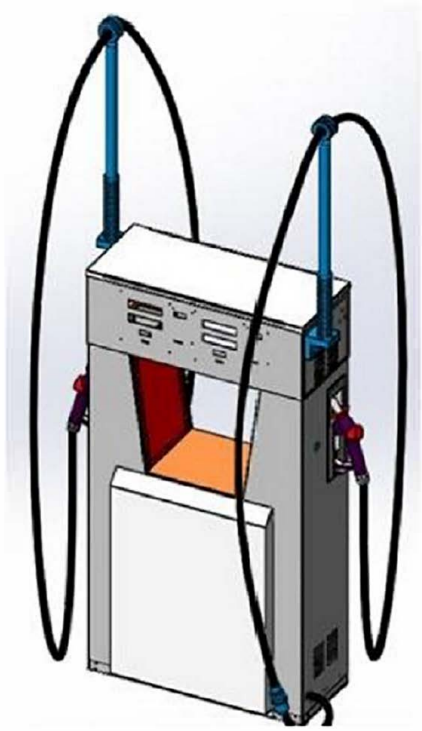
Variant 9 - Figure 2 Compac Model L-LPG, LPG Dispenser



Variant 9 - Figure 3 Compac Model L-LPGD (with single inlet and dual hose)



Variant 9 - Figure 4 Compac Model LL-LPG (with single inlet and dual hose)



SCHEDULE

Variant: 1584.10

Current Date of Issue: 07 May 2015

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MMA & LLA
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Conditions of Approval:	1. Trading Standards reserves the right to examine any instrument or component of an instrument purporting to comply with this approval. 2. The verification and subsequent certifications of the instrument must be carried out by Accredited Persons who are accredited under the Weights and Measures Act 1987 Section 30A or an Inspector of Weights and Measures. 3. The pattern marked with this approval number must be constructed as per the manufactures specifications. 4. This Certificate only covers compliance with respects to the relevant sections of the Weights and Measures Act and Regulations and should not be construed as guarantee of compliance with any safety requirements.

Description:

VARIANT 10

The variant approves the following:
Certain Compac models (Variant 8) used for dispensing Adblue are now approved to have one or two Compac model V50 mass flowmeters (Coriolis principle) as an alternative to the KG40 meter.

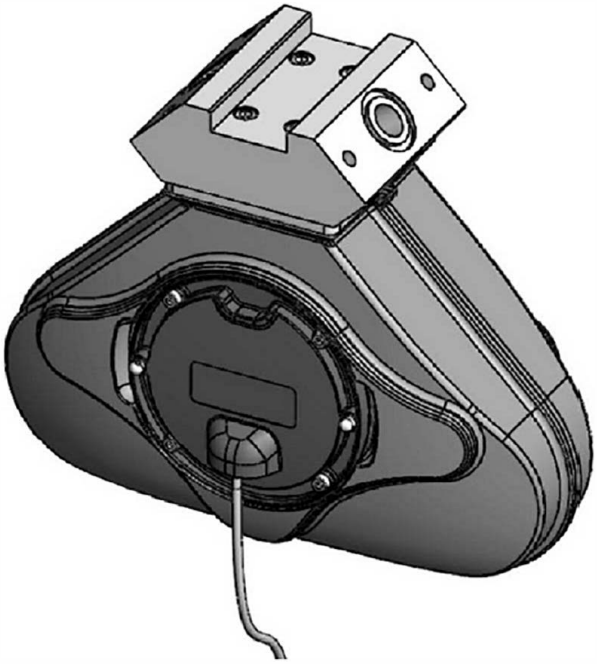
The software version for the dispensers using the V50 flowmeters is versions 29600 and 29601.

The V50 flowmeters are provided with a Modbus RS485 output to the calculator/indicator. A CRC checksum safeguards the data.

The V50 flowmeters can detect air and stops the transaction with a flashing 'Air' on the display. This capability allows the dispensing system to use with an above tank suction pumps without the need for a separate air eliminator.

METROLOGICAL MARKINGS:
Each measuring system must bear the following information, placed together on a data plate:
Pattern approval No: TS1584
Manufacturer's identification mark or trade mark .....
Manufacturer's designation (model number) .....
Serial number .....
Year of manufacture .....
Maximum flow rate (Qmax) ..... L/min
Minimum flow rate (Qmin) ..... L/min
Minimum measured quantity (Vmin) ..... L (#1)
Maximum operating pressure (Pmax) ..... kPa
Minimum operating pressure (Pmin) ..... kPa
Nature of liquids to be measured ..... (#2)
Maximum temperature of the liquid, Tmax
Minimum temperature of the liquid, Tmin
Environmental class class C
(#1) In addition, the minimum measured quantity (Vmin) shall be clearly visible on any indicating device visible to the user during measurement, in the form 'Minimum delivery 2 L'.
(#2) AdBlue fluid AUS32 (aqueous urea solution 32.5%).

Variant 10 - Figure 1 Compac Model V50 coriosis principle mass flowmeter



SCHEDULE

Variant: 1584.11

Current Date of Issue: 07 February 2020

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR Series, MMA & LLA
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Conditions of Approval:	As detailed in Certificate 1584 and its variants.

Description:

VARIANT 11

The variant approves the pattern and its variants to use with C5000 Calculator/Indicator (Figure 1 – Variant 11) and a Compac model CU-3000-3CH pulse generator (#).

(#)The manufacturer must be consulted for use of other alternative OIML R117 approved measurement transducer.

The field of operation of the Compac C5000 calculator/indicator unit is determined by the following characteristics:

- Maximum Input frequency 125 Hz per channel
- Accuracy class: 0.5
- Environmental temperature range: -25°C to 55°C (class C)
- Power supply input: 110 V AC to 240 V AC
- Volume conversion to 15ºC: For generalised products density range from 0.654 to 1.000 kg/L
- Volume conversion to 15°C:

For LPG density range (at 15°C) of 0.505 to 0.570 kg/L
Approved for use in interruptible metering systems

The Compac model C5000 calculator/indicator comprises a C5000 power supply and processor board in a flameproof enclosure. A K-Factor board and indicator circuit board enclosed in a separate housing.

The indicator circuit board has two or three liquid crystal displays (LCD) for displaying volume at metering conditions, pre-set volume, flow rate and operator prompts. The indicators display the following values:
Price up to $99999.99 in $0.01 increments
Volume up to 99999.99 L in 0.01 L increments
Unit price up to 9999.9¢/L in 0.1 ¢ increments
Totaliser up to 9999999 L in 1 L increments
Pre-set up to $9999 in $1 increments or 9999L in 1 L increments

An electronic totaliser can be viewed via the parameter switch (on the K-Factor circuit board) or the 'Total' button.

The keypad is used for entering a pre-set value and for authorisation purposes. The pre-set feature is approved for use with liquid measuring systems incorporating compatible flow control devices capable of stopping the flow of liquid when the pre-set value is reached.

(*) Compatible is defined to mean that no additions/changes to hardware or software are required for satisfactory operation of the complete system including all checking facilities.

METROLOGICAL MARKINGS:

The following information must be placed on a data plate affixed to the measuring instrument:-

Manufacturer's identification mark or trade mark designation.

Pattern Approval No
Serial number.
Year of manufacture.
Minimum measured quantity (MMQ)
Maximum flowrate (Qmax)
Minimum flowrate (Qmin)
Maximum pressure
Minimum pressure
Liquids
Temperature range.

Components:	1. Compac C5000 Calculator/Indicator 2. Compac model CU-3000-3CH pulse generator
Sealing:	• As detailed in certificate 1584 and its variants. • Compac C5000 Indicator/Calculator Unit: Configuration can be achieved via 'parameter' and 'K-factor' switches located on the K-factor circuit board which has a provision for sealing.
Mark of Verification:	An approved type seal used for sealing must take a mark of verification. Removal of this seal deems the instrument unstamped.

Figure 1 (Variant 11) - Compac Model C5000 Calculator&Indicator

SCHEDULE

Variant: 1584.12

Current Date of Issue: 01 September 2023

Pattern: Liquid Measuring Instrument

Make: Compac

Submitter: Compac Industries Ltd, Auckland, New Zealand

Conditions of Approval: As detailed in Certificate 1584 and its variants.

Description:

VARIANT 12

'The variant approves the pattern and its variants to use the aluminium version of Compac Model COM–50, COM–125 and COM–250 flowmeters. 'These flowmeters are constructed with an anodised aluminium meter housing (Figure 1–Variant 12).

All the operating parameters of the new version of the flowmeters remain the same.

METROLOGICAL MARKINGS:

The following information must be placed on a data plate affixed to the measuring instrument:-

Manufacturer's identification mark or trade mark designation.

Pattern Approval No
Serial number.
Year of manufacture.
Minimum measured quantity (MMQ)
Maximum flowrate (Qmax)
Minimum flowrate (Qmin)
Maximum pressure
Minimum pressure
Liquids
Temperature range.

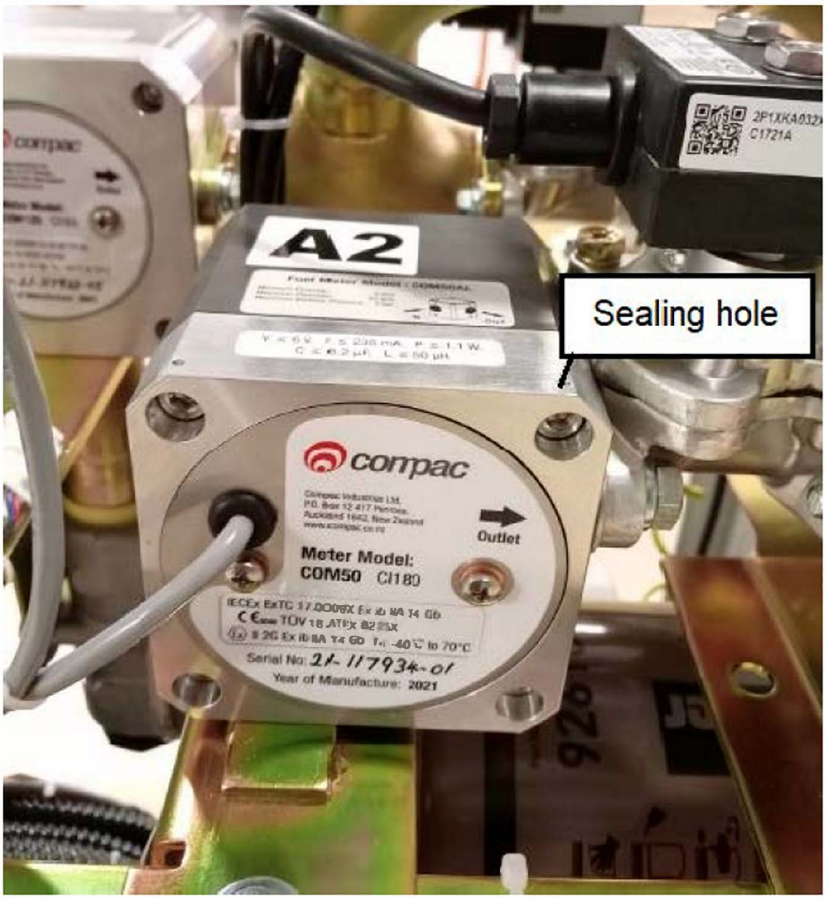
Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

Components: Compac Model COM50 or COM125 or COM250 flowmeter.

Sealing: The flowmeter with anodised aluminium housing shall be secured to the mounting frame to prevent the meter from being replaced, by passing sealing wire through at least one of the holes in the meter cover, thereby preventing the removal of the securing bolt and subsequently secured by a lead seal or any other approved type seal and must carry a mark of verification. See Figure 1 (Variant 12).

Mark of Verification: A mark of verification must be used to secure all sealing provisions detailed within this certificate and its variants. Removal of any prescribed seal, or failure to secure any prescribed seal with a mark of verification shall deem the instrument to not be stamped with a mark of verification, and illegal for trade use.

Figure 1 (Variant 12) - Typical Sealing Provision on COM-50 Aluminium version of flowmeter



SCHEDULE

Variant: 1584.13

Current Date of Issue: 02 October 2023

Pattern:	Liquid Measuring Instrument
Make:	Compac
Model:	MR8 00S
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand.
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Minimum Delivery:	8 0 L
Maximum flowrate:	8 00 L/min
Minimum flowrate:	8 0 L/min

Conditions of Approval:

The below conditions applies to Certificate 1584 and all its variants.

- A pre-set facility provided on Compac Model MR800S bulk delivery system is NOT approved, and the instrument must be marked "Pre-set not for trade use" or similar.

- 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.

- Trading Standards reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

- 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.

- The metrological markings specified within this certificate must be permanently recorded on the instrument.

- 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:

VARIANT 13

The variant approves the model MR800S bulk delivery system for ultra high flow rate deliveries of distillate and various grades of petrol, in attendant-operated mode.
The system uses the same components as MR400S (Variant 3) but with the following differences to the hydraulic system.

MR800S - Hydraulic System:
(i) Two Compac model COM 250 measurement transducers are configured in parallel with 2.5 inch pipework. See Figure 1 (Variant 13).

(ii) A CONVA HK07-65 64mm (2.5 inch) solenoid operated control valve, or other compatible (#) valve, is connected upstream of the hose for controlling the delivery.

(iii) A Parker (Goodyear) 64 mm (2.5 inch) hose, or other compatible (#) hose, downstream of the solenoid valve.

(iv) A TODO–MATIC 64 mm (2.5 inch) dry break coupling or other compatible (#) dry break coupling is fitted to the end of the hose and acts as the transfer device, which defines the start and finish of the measured volume and is designed to maintain the hose full of liquid.

(v) May be used on an underground tank with a transfer pump and a LS300MB strainer & air eliminator (or equivalent 3" inline strainer & air eliminator).

(#) 'Compatible' is defined to mean that no additions/changes to hardware/software specified in this approval are required.

Field of Operation:

The field of operation of the bulk delivery system is determined by the following characteristics:

• Minimum measured quantity, Vmin	80 L
• Maximum flow rate, Qmax	800 L/min
• Minimum flow rate, Qmin	80 L/min
• Maximum pressure of the liquid, Pmax	350 kPa
• Minimum pressure of the liquid, Pmin	100kPa
• Viscosity range of liquid (at 20°C)	0.5 to 20 mPa.s (#)
• Maximum temperature of the liquid, T,max	50 °C
• Minimum temperature of the liquid, T,min	–10°C
• Ambient temperature range	–25 °C to 55 °C
• Accuracy Class	0.5

(#) Flowmeter is adjusted for use with one product viscosity.

METROLOGICAL MARKINGS:

The following information must be placed on a data plate affixed to the measuring instrument:-

Manufacturer's identification mark or trade mark designation.

Pattern Approval No
Serial number.
Year of manufacture.
Minimum measured quantity (MMQ)
Maximum flowrate (Qmax)
Minimum flowrate (Qmin)
Maximum pressure
Minimum pressure
Liquids
Temperature range.

NOTE: A MR800S measuring system fitted with a pre-set facility must be clearly marked "Pre-set not for trade use" or similar.

Components:

COM250 flowmeter.

Refer to Sealing section on page 37 for updated sealing requirement for COM type flowmeter

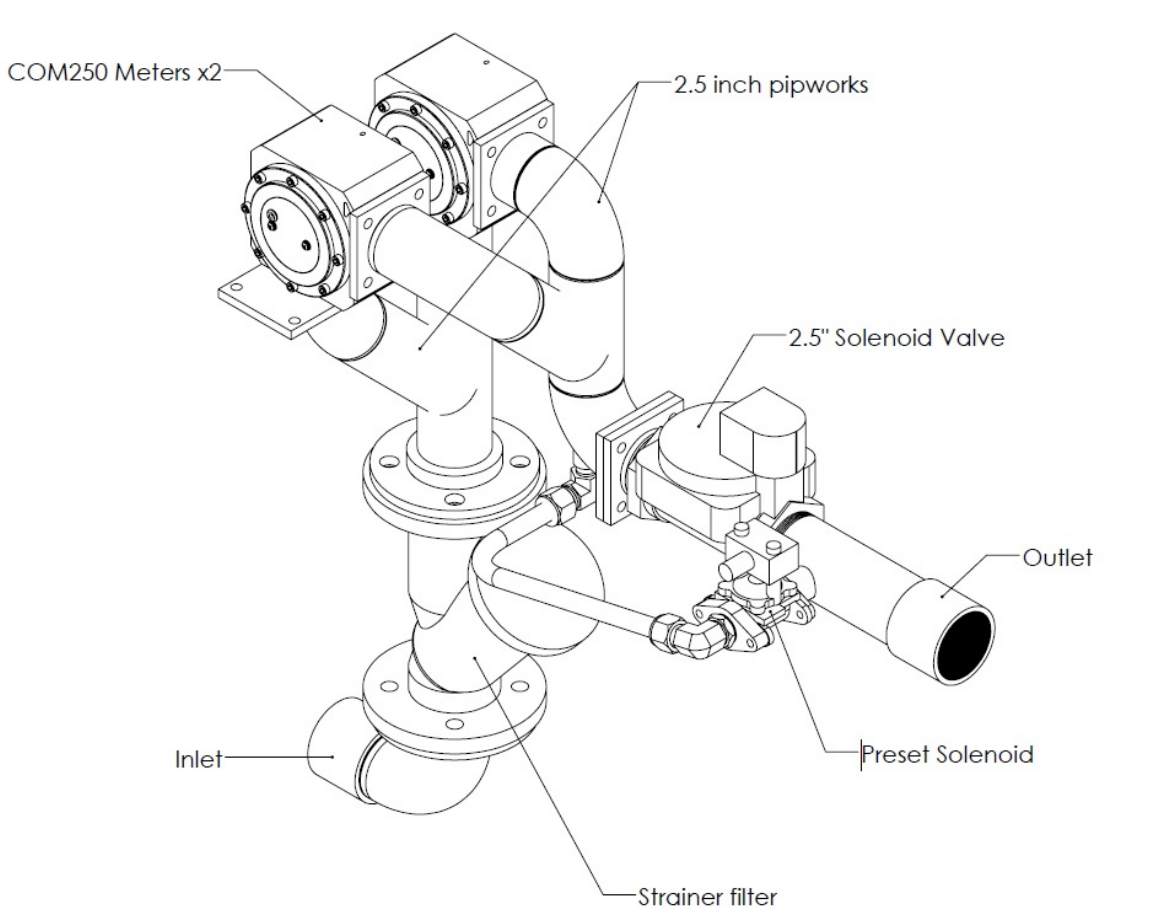
Sealing:

Mark of Verification:

COM250 flowmeter must be sealed as detailed in Certificate #1584 and its variants.

An adhesive destructible label or an approved type seal used for sealing must carry a Mark of Verification. Removal of the seal deems the instrument not verified.

Figure 1 (Variant 13) - MR800S Hydraulic System (showing two Compac COM250 flowmeters installed in parallel)



SCHEDULE

Variant:1484.14

Current Date of issue: 14 June 2024
Overseas Certificate No: 5/6A/91A

Pattern:	Driveway Flowmeter
Make:	Compac
Model:	MR40P
Manufacturer:	Compac Industries Ltd, Auckland, New Zealand
Submitter:	Compac Industries Ltd, Auckland, New Zealand
Display capacity:	999.99 L
Display interval:	0.010 L
Minimum Delivery:	2 L
Maximum flowrate:	≤ 400 L/min
Minimum flowrate:	≥ 4 L/min
Conditions of approval:	As detailed in Certificate #1584 and its variants

Description:
VARIANT 14:
The variant approves the new sealing method used to secure the meter and pulse generator of the Compac Model COM-50, COM-125 and COM-250 flowmeters (Figure 1-Variant 14).

All the operating parameters of the flowmeters remain the same.

METROLOGICAL MARKINGS:	As detailed in TS Certificate #1584 and its variants.
COMPONENTS:	Compac Model COM50 or COM125 or COM250 flowmeter.
Sealing:	The flowmeter must be sealed with a sealing wire to prevent both access to the internal parts of the meter, pulse generator and from removal of the meter, without breaking the seal. To facilitate this the meter may have holes in the meter body or in the cap screws securing the pulse generator. Using a sealing wire pass it through the holes provided and wrap it around the meter body and around the mounting frame or pipework in such a way that the meter, pulse generator nor the meter cover can be removed without breaking the seal. The sealing may be achieved by using one piece of sealing wire or multiple sealing wires or any approved type seal.
Mark of Verification:	A mark of verification must be used to secure all sealing provisions detailed within this certificate and its variants. Removal of any prescribed seal, or failure to secure any prescribed seal with a mark of verification shall deem the instrument to not be stamped with a mark of verification, and illegal for trade use.

Figure 1 - Variant 14 - Typical Sealing Arrangements