

Australian Government

National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Cancellation

Instrument Certificate of Approval No 5/6B/205

Issued by the Chief Metrologist under Regulation 60 of the National Measurement Regulations 1999

This is to certify that the approval for use for trade granted in respect of the

Staples Model Emflux M300 Flowmetering System

submitted by B 8

BO & JL Staples Pty Ltd 8 Gundah Road Mt Kuring-gai NSW 2080

has been cancelled in respect of new instruments as from 1 July 2010.

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



Australian Government

National Standards Commission

12 Lyonpark Road, North Ryde NSW 2113 Australia

Instrument Certificate of Approval

No 5/6B/205

Issued 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

Staples Model Emflux M300 Flowmetering System

submitted by BO & JL Staples Pty Ltd 8 Gundah Road Mt Kuring-gai NSW 2080.

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.

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CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 December 2008, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No 5/6B/205 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 Commission 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 the Commission's Document NSC P 106.

The Commission 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.

Special Conditions of Approval:

This approval is limited to seven (7) instruments as listed in Table 1.

DESCRIPTIVE ADVICE

Pattern: approved 7 November 2003

A Staples model Emflux M300 vehicle-mounted flowmetering system using an Emflux model 2040 flowmeter designed to measure the volume of effluent collected from an underground septic tank. The specific instruments covered by this approval are identified in Table 1.

Variant: approved 4 February 2004

1. Using an Emflux model 2060 flowmeter.

Technical Schedule No 5/6B/205 describes the pattern and variant 1.

FILING ADVICE

The documentation for this approval comprises:

Certificate of Approval No 5/6B/205 dated 16 February 2004 Technical Schedule No 5/6B/205 dated 16 February 2004 (incl. Test Procedure and Table 1)

Figures 1 to 5 dated 16 February 2004

Signed by a person authorised under Regulation 60 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

TECHNICAL SCHEDULE No 5/6B/205

Pattern: Staples Model Emflux M300 Flowmetering System

Submittor:BO & JL Staples Pty Ltd8 Gundah RoadMt Kuring-gaiNSW2080

1. Description of Pattern

A Staples model Emflux M300 vehicle-mounted flowmetering system (Figure 1) designed to measure the volume of effluent collected from an underground septic tank. The specific instruments covered by this approval are identified in Table 1.

1.1 Field of Operation

The following characteristics determine the field of operation of the measuring system.

•	Minimum measured quantity, V_{min}	500 L
•	Maximum flow rate, Q _{max}	600 L/min
•	Minimum flow rate, Q _{min}	100 L/min
•	Nominal power supply	24 V DC
•	Accuracy class	1.5

• The liquid to be measured is treated liquid effluent.

1.2 System Description

(i) Supply Tank

A secondary liquid storage or holding tank, usually located below ground level, is supplied with treated liquid effluent from a primary septic tank, which contains waste that is continually broken down by bacteria into liquid form.

(ii) Pump

A pump designed for suction lift via reinforced flexible hose connected to the supply tank. A small section of the inlet pipework is transparent for monitoring the proportion of air to liquid flow. A small section of transparent pipework may also be fitted before the meter.

(iii) Measurement Transducer

The measurement transducer is an Emflux model 2040 electromagnetic flowmeter having a fibreglass outer casing (Figure 2) and installed in a vertical position. A straight rigid pipe having a length equivalent to at least 10 pipe diameters is connected to the inlet of the flowmeter, and a straight rigid pipe having a length equivalent to at least 5 pipe diameters is connected to the outlet of the flowmeter.

The flowmeter is interfaced to an Emflux model M300 processor (Figure 3) which provides the necessary electrical excitation for the flowmeter, and also the calibration factors necessary to convert the flowmeter signal to a volume throughput.

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The Enflux M300 processor is configurable (including calibration) via the three pushbuttons on the front display panel. Pressing the button marked with a tick will transfer the user to the configuration menu, where a prompt will ask for a personnel identification number (PIN) which is required to gain access. Parameters essential for correct metering are "Flow Tube Factor", "Flow Tube Zero", "Low Flow Cut Off" and "Volume/Pulse" used for remote indicator.

The model M300 operates on a nominal 24 V DC supply voltage and has a liquid crystal display (LCD) for indicating the totals and the rate of flow.

(iv) Calculator/Indicator

The signal from the Emflux M300 processor is interfaced to a Contrec model 405D calculator/indicator (Figure 4) for displaying the volume metered. The volume is indicated on a six digit LCD and the power supply requirement is a nominal 24 V DC.

The access to calibration is possible either via the front panel or by connecting a wire link to the rear terminal strip across terminals 1 and 2. To determine if the indicator has been programmed to allow calibration access via the front panel, press the Total and Reset keys (respectively) for approximately six seconds.

A Contrec model 624DC printer may be connected to the indicator (and may be in the same enclosure, Figure 4) providing a receipt for the product collected.

(v) Transfer Point

The electrodes in the electromagnetic flowmeter define the beginning and end of measurement and the pipework from the outlet of the flowmeter is connected to the top of the receiving tank into which the metered effluent is delivered.

1.3 Operational Procedure

- (a) To commence measurement the pump must be operating with the vehicle engine running (typically up to 800 rpm).
- (b) During the priming process, wait until the hose to the inlet pump shows no pockets of air.
- (c) Reset the calculator/indicator to commence measurement of liquid flow.
- (d) Observe the transfer of liquid until the hose to the pump shows pockets of air.
- (e) Record the reading on the calculator/indicator or press the reset button to initiate a receipt for the quantity measured.

1.4 Sealing Provision

Provision is made for sealing the access to the calibration functions of the Contrec model 405D calculator/indicator.

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1.5 Markings and Notices

Each measuring system shall bear the following information, placed together either on the indicating device or on a data plate:

Pattern approval mark NS	C No 5/6B/205
Manufacturer's identification mark or trademark	
Meter model	
Serial number of the instrument	
Year of manufacture	
Maximum flow rate (Q max)	. L/min
Minimum flow rate (Q min)	. L/min
Type of liquid for which the system is verified Effl	uent
Accuracy class 1.5	

In addition, the minimum measured quantity shall be marked on the face of the indicator in the form "Minimum collection 500 L" or similar.

1.6 Verification/Certification Provision

Provision is made for a verification/certification mark to be applied.

1. Description of Variant 1

With an Emflux model 2060 electromagnetic flowmeter having a steel outer casing (Figure 5) and used in certain instruments as listed in Table 1.

TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in NSC Test Procedure No 13, *Non-driveway Flowmeters* using the type of liquid with which they will be used and which is marked on the instrument. Tests should be conducted in conjunction with any tests specified in the approval documentation for any indicator/ controller and/or any conversion device, etc. used.

The liquid to be measured is treated effluent. In the absence of appropriate quantities of treated effluent being available, instruments may be tested and calibrated using water drawn from a standing pond, or similar source.

Maximum Permissible Errors

For accuracy class 1.5

The maximum permissible errors are:

±1.5% for the complete metering system (in-service tolerance).

±1.0% for calibration/adjustment of the meter. (*)

±15 L for deliveries equal to the minimum measured quantity.

(*) It is forbidden to adjust the calibration of the meter to give an error other than as close as practical to zero average error.

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TABLE 1

 Single metering instrument Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump: 	Emflux M300 Emflux 2060 Contrec 405D Contrec 624DC Heliflo RTO-80-R4	S/No 13344 S/No 13344 S/No 933074 S/No 121116 S/No H-0786G
 Single metering instrument Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump: 	Emflux M300 Emflux 2040 Contrec 405D Contrec 624DC Roto MRO-80	S/No 9860 S/No 9860 S/No 933075 S/No 911069 S/No H-0388F
 Single metering instrument Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump: 	Emflux M300 Emflux 2040 Contrec 405D Contrec 624DC Mono CD-80	S/No 9912 S/No 9912 S/No 512124 S/No 9411255 S/No D55071
 4. Single metering instrument Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump: 	Emflux M300 Emflux 2040 Contrec 405D Contrec 624DC Roto MRO-80	S/No 9294 S/No 9294 S/No 512119 S/No 9493 S/No H-0591D
5. Single metering instrument Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump:	Emflux M300 Emflux 2060 Contrec 405D Contrec 624DC Heliflo NCA 061	S/No 13342 S/No 13342 S/No 30121 S/No 121134 S/No 11066
 6. Single metering instrument Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump: 	Emflux M300 Emflux 2060 Contrec 405D Citizen CBM920 Heliflo NCA 061	S/No 15288 S/No 03B1 S/No 212088 S/No 01Y1343 S/No 2128
 7. Dual metering instrument Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump: 	Emflux M300 Emflux 2060 Contrec 405D Contrec 624DC Heliflo RTO-80-R4	S/No 12279 S/No 12279 S/No 638171 S/No 58400 S/No H-0684F
Flowmeter Signal Processor: Electromagnetic Sensor: Calculator/Indicator: Printer: Pump:	Emflux M300 Emflux 2060 Contrec 405D Contrec 624DC Heliflo RTO-80-R4	S/No 13343 S/No 13343 S/No 512120 S/No 121135 S/No H-0773F

Approved Instruments

FIGURE 5/6B/205-1



FIGURE 5/6B/205 - 2



Emflux Model EM2040 Electromagnetic Flowmeter

FIGURE 5/6B/205 - 3



Emflux Model M300 Processor

FIGURE 5/6B/205 - 4



Contrec Model 405D Calculator/Indicator and Printer Receipt Slot

FIGURE 5/6B/205 - 5



Emflux Model EM2060 Electromagnetic Flowmeter