



National Standards Commission

12 Lyonpark Road, North Ryde NSW

Cancellation Supplementary Certificate of Approval No S170A

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

Acme Model 5023-3 Indicator for Liquid-measuring Systems

submitted by Acme Fluid Handling Pty Ltd
 32 Greens Road
 Dandenong VIC 3175

has been cancelled in respect of new instruments as from 1 October 2000.

Instruments which were verified/certified before that date may, with the concurrence of the relevant verifying authority, be submitted for reverification.

Signed by a person authorised under Regulation 63 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.



National Standards Commission



Supplementary Certificate of Approval

No S170A

Issued under Regulation 9
of the
National Measurement (Patterns of Instruments) Regulations

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

Acme Model 5023-3 Indicator for Liquid-measuring Systems

submitted by Acme Fluid Handling Pty Ltd
Lot 1, Greens Road
Dandenong VIC 3175.

This Certificate is issued upon completion of a review of NSC approval No S170.

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.

A handwritten signature in black ink, appearing to read 'J Birch'. The signature is written in a cursive style with a large initial 'J'.

CONDITIONS OF APPROVAL

This approval is subject to review on or after 1/5/96.
This approval expires in respect of new instruments on 1/5/97.

Instruments purporting to comply with this approval shall be marked NSC No S170A and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked NSC No S170A in addition to the approval number of the instrument.

It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the drawings and specifications 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 106.

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

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

DESCRIPTIVE ADVICE

Pattern: approved 3/4/91

- An Acme model 5023-3 indicator for use in Commission-approved liquid-measuring systems incorporating an Acme model EPU-100 pulse generator.

Variants: approved 3/4/91

1. Certain other models and configurations as listed in Table 1.
2. With certain other Commission-approved pulse generators.
3. With a Wayne model WE-1 (part No 12576) or a Veeder-Root model 761 pulse generator.

Technical Schedule No S170A describes the pattern and variants 1 to 3.

FILING ADVICE

The documentation for this approval comprises:

Supplementary Certificate of Approval No S170A dated 31/5/91
Technical Schedule No S170A dated 31/5/91 (incl. Table 1 and Test
Procedure)
Figure 1 dated 31/5/91



National Standards Commission

TECHNICAL SCHEDULE No S170A

Pattern: Acme Model 5023-3 Indicator for Liquid-measuring Systems.

Submitter: Acme Fluid Handling Pty Ltd
Lot 1, Greens Road
Dandenong VIC 3175.

1. Description of Pattern

An Acme model 5023-3 indicator (Figure 1) which may be connected to an Acme model EPU 100 pulse generator (as described in the documentation of NSC approval No S189A) for use in Commission-approved liquid-measuring systems.

1.1 Signal Interface

The indicator is for use with pulse generators which are interfaced in accordance with the circuit recommendations DIN 19234 and NAMUR.

The flowmeter shall be used within a flow rate range such that the pulse generator output does not exceed 29400 pulses per minute.

1.2 Power Supply

The instrument operates with either 12 or 24 volts DC supply (see Table 1). Disconnection of power causes the display to blank, but retains the totaliser value and the last volume delivered in the non-volatile memory.

1.3 Installation

The indicator may be mounted directly to the pulse generator or remotely. Connections of auxiliary devices shall be routed to minimise stray pulse pickups.

1.4 Display

Whenever power is applied, a display check is initiated causing all segments to illuminate for about 5 seconds, after which the last volume delivered is displayed.

Volume (resettable)	99999.9 in 0.1 L increments
Totaliser	999999 in 1 L increments

Notes: The volume indicator may also be set to read in litres or decalitres.

The totalising indication may be viewed only while the TOTALS button is depressed.

1.5 Calibration Functions

Access to the calibration functions, which include density setting, reset of continuous totals, calibration (K) factor, linearity correction factors, calibration of temperatures at 15°C and 45°C and meter identification number, is achieved by connecting a dedicated calibration unit into the signal input connection at the back of the indicator.

The calibration unit does not form part of the pattern and shall not be connected to the indicator when being used for trade.

1.6 Temperature Conversion

The pattern is equipped with an electronic temperature conversion facility for indicating the volume at 15°C of liquefied petroleum gas of density between 0.500 kg/L and 0.600 kg/L, at temperatures between 0°C and 40°C.

The temperature conversion is based on Table 54 ASTM-IP Petroleum Measurement Tables.

1.7 Linearisation Correction

The pattern is equipped with a linearisation correction facility for correcting the meter calibration as a function of flow rate up to $\pm 10\%$.

Up to 8 meter performance correction factors over the flow rate range may be entered using the calibration function.

1.8 Markings

Instruments are marked with the following data, together in one location:

Manufacturer's name or mark	
Model number	
Serial number	
Approval number	NSC No S170A
Liquid density range	0.50 to 0.60 kg/L
Liquid temperature range	0°C to 40°C
Density for which temperature compensator is set kg/L (-)
Operating (air) temperature range	-10°C to +45°C

- (-) The indicator either includes a means of displaying the density, or is connected to a printer which prints the set density.

When the temperature convertor is activated, the indicator reading face shall be marked "Reference temperature 15°C" or "Litres at 15°C".

1.9 Verification Provision

Provision is made for a verification mark to be applied.

The signal input connection at the rear of the instrument is sealed.

2. Description of Variants

2.1 Variant 1

Certain other models and configurations as listed in Table 1, including in alternative housings.

Instruments without the temperature conversion facility, known as the 501* series, shall not be used for indicating the volume of liquefied petroleum gas.

2.2 Variant 2

For use with certain other compatible Commission-approved pulse generators (including those fitted to turbine meters - Table 1) and which conform to the requirements of cl. 1.1 Signal Interface.

2.3 Variant 3

For use with a Wayne model WE-1 (part No 12576) or a Veeder-Root model 761 pulse generator (Table 1), having maximum rotational speeds up to 240 revs/min or 480 revs/min, respectively.

TEST PROCEDURE

Instruments should be tested in accordance with any tests included in the approval documentation for the pattern to which the pattern is connected, and in accordance with any relevant tests specified in the Inspector's Handbook.

Maximum Permissible Errors at Verification/Certification

The maximum permissible errors applicable are those applicable to the system to which the instrument approved herein is fitted, as stated in the approval documentation for the system.

Where an instrument is fitted with a device to convert the indication of volume to volume at reference conditions, the maximum permissible error specified above is increased by 0.2% when the temperature convertor is activated.

Reference conditions for petroleum liquids are specified in Australian Standard 2649 - 1983, Petroleum Liquids and Gases - Measurement - Standard Reference Conditions.

TABLE 1

	*	SERIES TYPE:
	1	Standard totaliser.
	2	Totaliser with temperature conversion.
	*	CASE CONSTRUCTION:
	1	Panel mount, terminal strip connection.
	2	Bench mount as above.
	3	Environmentally sealed, screw lock connections, 12 volt supply.
	6	As for 3 above, but with 24 volt supply.
	*	INPUT TYPE:
	1	Floating low voltage (turbine meter).
	2	TTL CMOS open collector (Wayne, Veeder-Root pulse generators).
	3	0.25 mA proximity switch (Acme EPU 100, etc.).
	##	OPTIONAL PRINTER:
	PR	With integral roll printer.
	SP	With separate slip printer.

Model No 50** - *## (e.g. the pattern, model 5023-3)

NOTE: All the above models may incorporate linearisation correction facility.

Approved Models and Configurations

National Standards Commission



Notification of Change Supplementary Certificate of Approval No S170A Change No 1

The following change is made to the approval documentation for the

Acme Model 5023-3 Indicator for Liquid-measuring Systems

submitted by Acme Fluid Handling Pty Ltd
 32 Greens Road
 Dandenong VIC 3175.

In Supplementary Certificate of Approval No S170A dated 31 May 1991, the Condition of Approval referring to the expiry of the approval should be amended to read:

“This approval expires in respect of new instruments on 1 June 1998.”

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.



National Standards Commission
Notification of Change
Supplementary Certificate of Approval No S170A
Change No 2

The following change is made to the approval documentation for the

Acme Model 5023-3 Indicator for Liquid-measuring Systems

submitted by Acme Fluid Handling Pty Ltd
32 Greens Road
Dandenong VIC 3175.

In Supplementary Certificate of Approval No S170A dated 31 May 1991, the Condition of Approval referring to the expiry of the approval (previously amended by Notification of Change No 1 dated 29 May 1997), should now be deleted.

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.

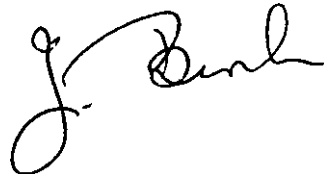


FIGURE S170A - 1



Acme Model 5023-3 Indicator