



**Australian Government**  
**Department of Industry, Science,  
Energy and Resources**

**National  
Measurement  
Institute**

36 Bradfield Road, West Lindfield NSW 2070

**Certificate of Approval**

**NMI 5/6A/225**

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 instruments herein described.

Gilbarco Model T925A1ND SK700-2 Liquid Dispenser for Motor Vehicles

submitted by            Gilbarco Australia Limited  
                                 20 Highgate Street  
                                 Auburn    NSW    2144

**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 117-1, Measuring Systems for Liquids Other than Water, dated June 2011.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

**DOCUMENT HISTORY**

<b>Rev</b>	<b>Reason/Details</b>	<b>Date</b>
0	Pattern & variants 1 to 3 approved – certificate issued	15/09/10
1	Pattern amended (Test Procedure) – notification of change issued	20/10/11
2	Pattern & variants 1 to 3 updated & amended (software version & Test Procedure) – certificate issued	13/02/13
3	Pattern & variants 1 to 3 updated & reviewed – variants 4 & 5 approved – certificate issued	4/11/15
4	Variants 6 to 8 approved – certificate issued	01/03/17

Document History (cont...)

5	Variant 7 amended – Pattern Amended (Hose Configuration) certificate issued	28/02/20
6	Variant 9 approved – certificate issued	21/05/21

CONDITIONS OF APPROVAL

**General**

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 5/6A/225' and only by persons authorised by the submitter.

It is the submitter'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.

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

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



**Darryl Hines**  
Manager  
Policy and Regulatory Services

TECHNICAL SCHEDULE No 5/6A/225

**1. Description of Pattern** **approved on 15/09/10**

A Gilbarco model T925A1ND SK700-2 liquid dispenser (Figure 1a) for certain motor vehicles (#1) and which is approved to dispense AdBlue (#2), in attendant-operated mode. The meter is adjusted to be correct for the liquid for which it is to be verified.

- (#1) Vehicles having heavy duty diesel engines fitted with a Selective Catalytic Reduction (SCR) unit.
- (#2) AdBlue fluid AUS32 (aqueous urea solution 32.5%) also known as 'Diesel Exhaust Fluid (DEF)'.

**1.1 Field of Operation**

•	Minimum measured quantity, $V_{min}$	2 L	
•	Maximum flow rate, $Q_{max}$	40 L/min	
•	Minimum flow rate, $Q_{min}$	4 L/min	
•	Maximum pressure of the liquid, $P_{max}$	320 kPa	
•	Minimum pressure of the liquid, $P_{min}$	50 kPa	(#3)
•	Dynamic viscosity (at 25°C)	1.4 mPa.s	(#4)
•	Maximum temperature of the liquid, $T_{max}$	30°C	
•	Minimum temperature of the liquid, $T_{min}$	0°C	
•	Ambient temperature range	-25 to 55°C	
•	Accuracy class	0.5	

- (#3) Minimum pressure required for effective operation of the gas elimination device.
- (#4) The flowmeter is adjusted to be correct for AdBlue/DEF fluid AUS32 (aqueous urea solution 32.5%) for which it is to be verified.

**1.2 Description of the Metering System**

The instrument (Figures 1 and 2) incorporates the following components:

- (i) The dispenser is supplied from a remote pump installed in flooded suction in either an above or below ground tank. An Ecodiver/Flux is a typical possible type of pump. The supply tank is fitted with a low level device which prevents measurements when the device is activated.
- (ii) A measurement transducer comprising an Endress+Hauser model *LPG mass* DN15 15 mm Coriolis principle mass flowmeter (Figure 2) which provides electrical pulse output proportional to liquid throughput.
- (iii) A hose/nozzle, mounted on the side of the dispenser housing. An Elaflex model ZVA 16 mm nozzle (\*) is used; the hose used is an Elaflex Adblue 16 mm hose of 3.3 metres maximum length.
- (\*) Note that the submitter must be consulted regarding the acceptability of any alternative nozzles.
- (iv) A Burkert model 2/2 – TYPE 6213 solenoid valve.

- (v) A Gilbarco model Sandpiper-II calculator/indicator which has 3 displays (Figure 1) for indicating the following:
- Volume up to 9999.99 L
  - Price up to 9999.99 \$
  - Unit price up to 999.9 ¢/L

The instrument is approved with versions 25xxx, 27xxx or 29xxx (\*) software, which can be viewed by pushing the F1 then the F2 buttons on the Managers' keypad.

- (\*) xxx may be a series of alphanumeric characters and may include hyphens, e.g. 27 A 04 154, 29 04 – 10 E, etc.

### 1.3 Checking Facilities

An automatic segment test is performed at the start of each delivery.

The calculator monitors the presence and correct transmission of signal from the measurement transducer, and in the event of detecting a fault the instrument indicates an error code and has provision for controlling electrically-operated valves to stop the delivery.

### 1.4 Descriptive Markings and Notices

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

Pattern approval sign	5/6A/225	
Manufacturer's identification mark or trade mark	.....	
Manufacturer's designation (model number)	.....	
Serial number	.....	
Year of manufacture	.....	
Maximum flow rate ( $Q_{max}$ )	..... L/min	
Minimum flow rate ( $Q_{min}$ )	..... L/min	
Minimum measured quantity ( $V_{min}$ )	..... L	(#1)
Maximum operating pressure ( $P_{max}$ )	..... kPa	
Minimum operating pressure ( $P_{min}$ )	..... kPa	
Nature of liquids to be measured	.....	(#2)
Maximum temperature of the liquid, $T_{max}$	30°C	
Minimum temperature of the liquid, $T_{min}$	0°C	
Environmental class	class C	

- (#1) In addition, the minimum measured quantity ( $V_{min}$ ) 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/DEF (aqueous urea solution 32.5%).

### 1.5 Verification Provision

Provision is made for the application of a verification mark.

## 1.6 Sealing Provision

Access to the electronic meter calibration switch has provision for sealing as shown in Figure 3. Both lids of the measurement transducer are sealed in place.

### 2. Description of Variant 1 **approved on 15/09/10**

Certain other models and configurations of liquid dispensers for AdBlue identified using Table 1 below.

### 3. Description of Variant 2 **approved on 15/09/10**

Certain models of this approval without a hose retraction facility (Figure 1b). Instruments may be identified using Table 1 showing that the series number is 'T930' (instead of 'T925' for instruments with hose retraction, e.g. the pattern).

### 4. Description of Variant 3 **approved on 15/09/10**

Equipped with one or more heating elements (Figures 2 and 4) which prevent the temperature in the main housing and hose cassette dropping below freezing point.

Instruments may be identified using Table 1 except that instrument model numbers include an additional suffix, namely 'T', if a heater is fitted, e.g. the model number for the pattern becomes T925A1NDT SK700-2.

### 5. Description of Variant 4 **approved on 4/11/15**

Similar to the pattern except that the mass meter is connected by 'ModBus' wiring in which case the K-factor used for calibration is stored in the meter.

#### 5.1 Sealing Provision

When 'ModBus' wiring is used the meter calibration access is sealed as shown in Figure 5.

### 6. Description of Variant 5 **approved on 4/11/15**

The pattern and variants dispensing AdBlue/DEF can be used in conjunction with dispensers/hydraulics described approval NMI 5/6A/222, including within the same housing, for dispensing of distillate at flow rates as approved in 5/6A/222.

### 7. Description of Variant 6 **approved on 01/03/17**

With one or more nozzles for dispensing Diesel Exhaust Fluid (DEF) also known as AdBlue fluid AUS32 (aqueous urea solution 32.5%) in attendant-operated mode, or in attended self-service mode using any compatible (#) approved control console. The meter is adjusted to be correct for the liquid for which is verified.

#### 7.1 Field of Operation

The field of operation of the measuring system is the same as listed for the pattern in clause 1.1 **Field of Operation** except for the following:

- Dynamic viscosity 1.4 mPa.s (at 25°C) (##)
- Maximum temperature of the liquid,  $T_{max}$  30°C
- Minimum temperature of the liquid,  $T_{min}$  0°C

(##) The dispenser is adjusted to be correct for Diesel Exhaust Fluid (AUS32 - aqueous urea solution 32.5%) for which it is to be verified.

**8. Description of Variant 7**

**approved on 01/03/17  
amended on 28/02/20**

For use with Gilbarco model Apollo calculator/indicator. This indicator is approved with versions A30xxx software, which can be viewed as described above in clause **1.2 Description of the Metering System.**

**9. Description of Variant 8**

**approved on 01/03/17**

With one or more Krohne model BatchFlux 3200C electromagnetic flowmeters (Figure 6 & 7) for dispensing Diesel Exhaust Fluid (DEF) also known as AdBlue fluid AUS32 (aqueous urea solution 32.5%).

**10. Description of Variant 9**

**approved on 21/05/21**

A Gilbarco model T990 which is designed for dispensing Diesel Exhaust Fluid (DEF) from an above ground supply tank. The T990 uses the same components as the SK700-2 dispenser, with components integrated into the supply tank housing (Figure 9).

The supply tank is fitted with a liquid level monitor and low fluid level device which prevents further measurements when a low fluid level is reached.

TABLE 1

Meaning of model designations (e.g. the pattern is a model **T925A1ND** SK700-2):

First four digits, Series;

T925 = SK700-2 with hose retraction

T930 = SK700-2 without hose retraction (Variant 2)

Fifth digit = Country code; always

A= Australia

Sixth digit = Number of hoses;

1 or 2

Seventh digit = Flow rate; always

N = Nominal (40 L/min)

Eight digit = Hydraulic module; always

D = Dispenser (using remote pump)

Suffix = Heater;

No suffix = no heater fitted

T = heater fitted (Variant 3)

## TEST PROCEDURE No 5/6A/225

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Tests should be conducted in conjunction with any tests specified in the approval documentation for any components used, including the indicator/controller.

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

### **Maximum Permissible Errors**

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

### **Hose Configuration**

SK200-2 series, 2 Hose model (Figure 8)

The numbering guide is on the J Box inside the metering cabinet. The allocated suffix for a hose is as per the numbering guide, for example a 2 Hose Dispenser is numbered 12345A and 12345B.

FIGURE 5/6A/225 – 1



(a)

A Typical Model T9**25**A1ND SK700-2  
(With hose retraction)  
The Pattern

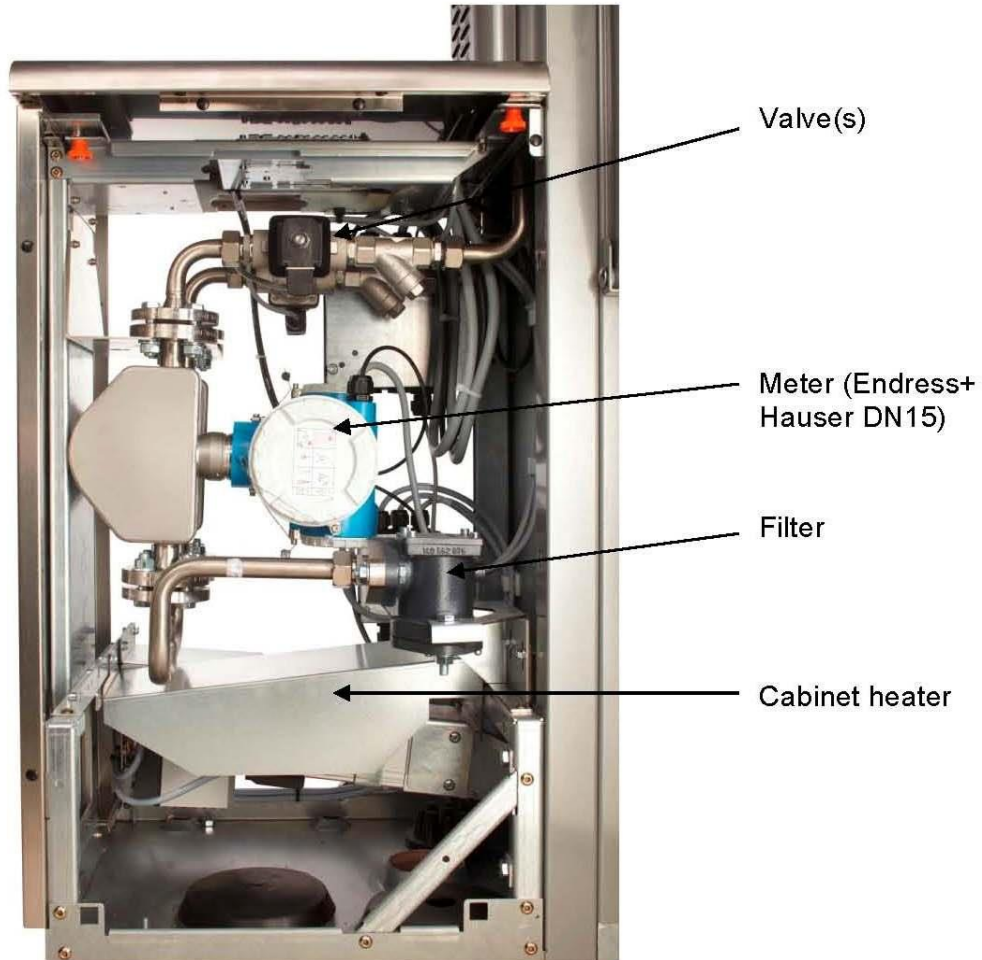
(b)

A Typical Model T9**30**A1ND SK700-2  
(Without hose retraction)  
Variant 2

Typical Gilbarco T925A/T930A SK700-2 Series AdBlue Dispensers  
(Without heater/s)

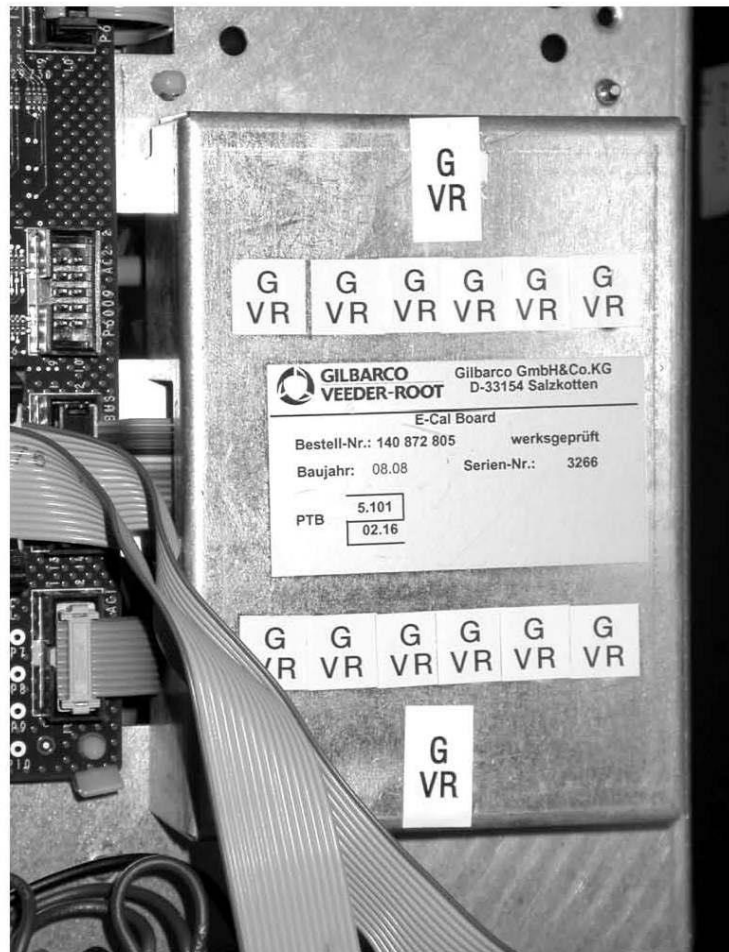


FIGURE 5/6A/225 – 2

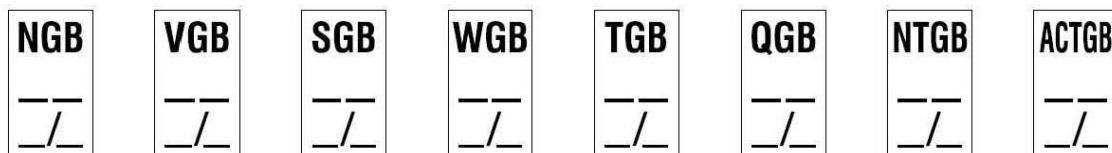


Typical Gilbarco T925A/T0930A SK700-2 Series AdBlue Hydraulics  
(in this case with heater/s as per Variant 3)

FIGURE 5/6A/225 – 3



Typical Sealing of Meter Calibration Access  
(using destructible adhesive labels)



Examples of different seal details

Typical Sealing Details

FIGURE 5/6A/225 – 4



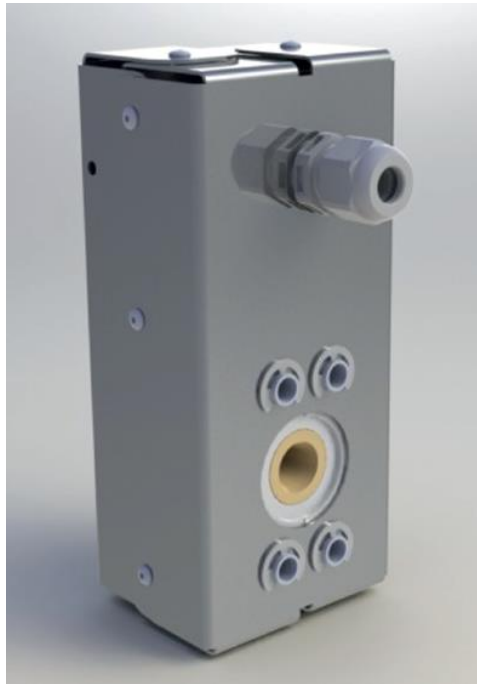
A Typical Gilbarco Model T925A1NDT SK700-2 AdBlue Dispenser  
(With heater/s and with hose retraction) (Variant 3)

FIGURE 5/6A/225 – 5



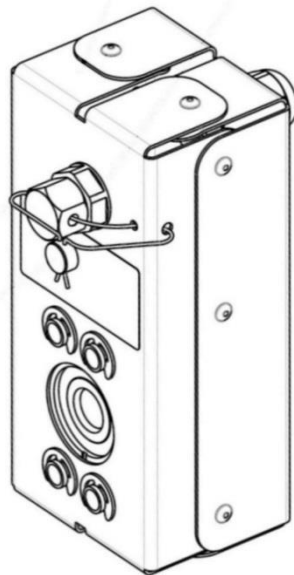
Typical Sealing of Coriolis Meter Calibration Access Including ModBus Connections (Variant 4)

FIGURE 5/6A/225 – 6



Krohne Model Batchflux 3200C Electromagnetic Flowmeter (Variant 8)

FIGURE 5/6A/225 – 7

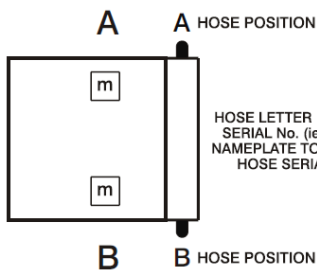


Sealing is via wire and lead slug.  
In Australian model dispensers the slug will be mounted in a retaining cup that is secured to the dispenser frame

FIGURE 5/6A/225 – 8



SK700-2 WITHOUT HOSE RETRACTION



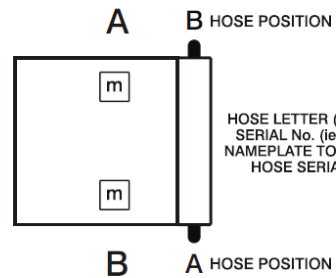
HOSE LETTER (A) IS ADDED TO THE PUMP SERIAL No. (ie 700000) MARKED ON THE NAMEPLATE TO PRODUCE THE INDIVIDUAL HOSE SERIAL NUMBER (ie 700000A)

024

REAR

FRONT

SK700-2 WITH HOSE RETRACTION



HOSE LETTER (A) IS ADDED TO THE PUMP SERIAL No. (ie 700000) MARKED ON THE NAMEPLATE TO PRODUCE THE INDIVIDUAL HOSE SERIAL NUMBER (ie 700000A)

025

REAR

FRONT

SK700-2 AdBlue 2-Hose with Hose Retract



FIGURE 5/6A/225 – 9



Gilbarco model T990 (Variant 9)

~ End of Document ~