



Australian Government
Department of Industry,
Innovation and Science

National Measurement Institute

Certificate of Approval

NMI 5/6A/234

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.

HONG YANG GROUP Model CMD1687SK-G Fuel Dispensers for Motor Vehicles

submitted by X Fuel Australia Pty Ltd
Level 1, Unit 90
14 Telopea Avenue
Homebush West NSW 2140

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 July 2011.

This approval becomes subject to review on 1/01/22, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 7 approved – certificate issued	13/12/16

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 5/6A/234' 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 Certificate 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*.



Mario Zamora

TECHNICAL SCHEDULE No 5/6A/234

1. Description of Pattern **approved on 13/12/16**

A Hongyang model CMD1687SK-G fuel dispenser for motor vehicles (Figures 1 and Table 1) is approved to dispense various grades of fuels (*), 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 it is to be verified.

- (*) including up to 10% ethanol (E10) and various grades of pure biodiesel and biodiesel/distillate blends (to Australian government standard).

1.1 Field of Operation

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

- Minimum measured quantity, V_{min} 2 L
- Maximum flow rate, Q_{max} 50 L/min
- Minimum flow rate, Q_{min} 5 L/min
- Maximum pressure of the liquid, P_{max} 350 kPa
- Minimum pressure of the liquid, P_{min} 150 kPa (#1)
- Range of liquids viscosity 0.5 to 20 mPa.s (at 20°C) (#2)
- Maximum temperature of the liquid, T_{max} 50°C
- Minimum temperature of the liquid, T_{min} -20°C
- Ambient temperature range -25 to 55°C
- Accuracy class 0.5

(#1) Minimum pressure required for effective operation of the gas elimination device.

(#2) The flowmeter is adjusted for use with one product viscosity. Fuels include kerosene, distillate and various grades of petrol (which may include up to 10% ethanol). The pattern and variants constructed for use to dispense various grades of pure biodiesel and biodiesel/distillate blends (to Australian government standard).

1.2 Description of the Metering System

The instrument (Figure 1) incorporates the following components:

- (i) A HongYang model U102-B pumping unit (Figure 3).
 - (ii) A measurement transducer comprising a HongYang model U101-B four piston positive displacement flowmeter (Figure 4) fitted with a HongYang model U501-G pulse generator (Figure 5), or any other compatible (#) NMI-approved pulse generator.
 - (iii) A hose/nozzle, mounted on the side of the dispenser housing. The nozzle used is a 16mm OPW 11A and 7H nozzle, or 16 mm ZVA Elaflex nozzle, or any other NMI-approved nozzles (*)
- (*) Note that the submitter must be consulted regarding the acceptability of any alternative nozzles.
- (#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system.


1.3 Calculator/Indicator


A HongYang model S20 calculator/indicator (Figure 6a) which has a single display or an alternative dual LCD display model (Figure 6b) for indicating dollar, volume and price.

The display limits and increments are:

Volume	9999, 99 in 0.01 L increments
Unit Price	9999(4)
Price to pay	999999(6)

The instrument is approved with version 0086-267-01 software, which can be viewed by following the below steps.

a) Turn the key to this position "  " .

b) Press the  button 5 times till keyboard display "Function U0086-267-01", in which "0086-267-01" is the software version.

A pre-set device may also be fitted to allow pre-set to be selected by means of volume (litres) or price (dollars).

1.4 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.

1.5 Descriptive Markings and Notices

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

Pattern approval number	NMI 5/6A/234
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}	..... (#3)
Minimum temperature of the liquid, T_{min}	..... (#3)
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' or 'Minimum delivery 2/5 L'.

(#2) e.g. distillate or D.

(#3) Required if liquid temperature range differs from -10°C to 50°C.

1.6 Sealing Provision

The gas separator test valve has provision for sealing. The pulse generator (U501-G), meter (U101-B) and calculator/indicator (S20) are sealed as shown in Figures 4 to 6.

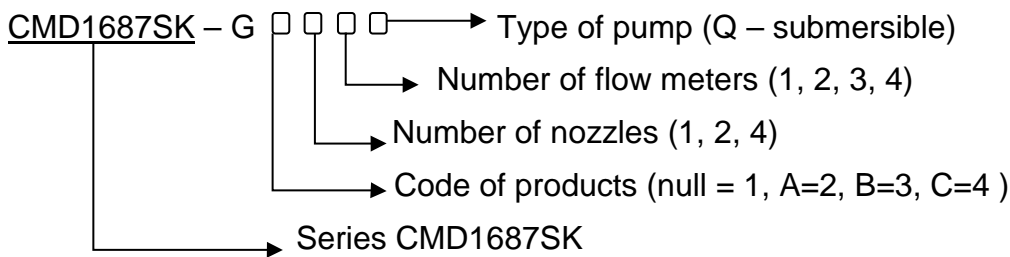
1.7 Verification Provision

Provision is made for the application of a verification mark.

2. Description of Variant 1 approved on 13/12/16

Certain other models of the C Series of fuel dispensers identified using the following designation:

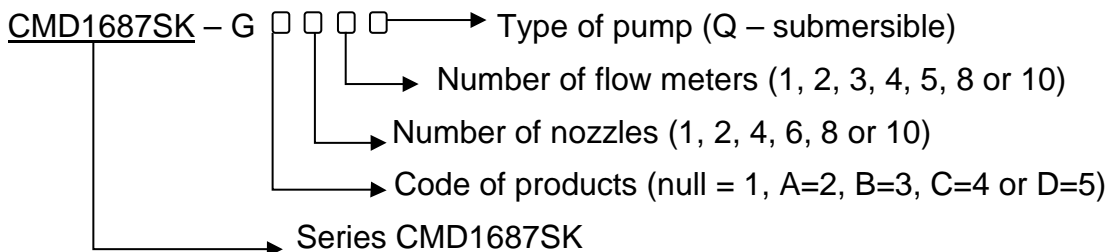
TABLE 1– Approved C Series Model Configurations (Variant 1)



3. Description of Variant 2 approved on 13/12/16

Certain models of the F Series of fuel dispensers (Figure 7) identified using using the following designation:

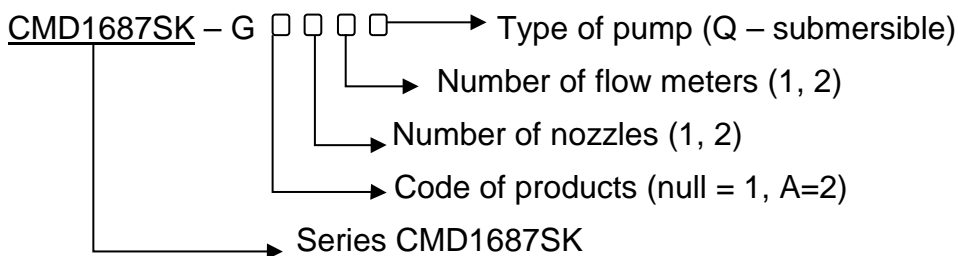
TABLE 2– Approved F Series Model Configurations (Variant 2)



4. Description of Variant 3 approved on 13/12/16

Certain models of the H Series of fuel dispensers (Figure 8) identified using Table 3 below.

TABLE 3– Approved H Series Model Configurations (Variant 3)



5. Description of Variant 4 **approved on 13/12/16**

With one or more compatible submersible turbine pumps (STPs) incorporating a leak detection system. The STP replaces the equivalent components (i.e. motor, pump/strainer/gas separator, and associated pipework) in certain fuel dispensers covered by this approval.

6. Description of Variant 5 **approved on 13/12/16**

With standard pumps as described for the pattern, but with 25 mm (1") piping, 25 mm hoses, and ZVA Elaflex 25 mm nozzles or any other NMI-approved nozzles, and known as High flow rate fuel dispensers with the following field of operation:

- For use with distillate
- Maximum flow rate (Qmax) 90 L/min
- Minimum flow rate (Qmin) 9 L/min
- Minimum measured quantity (Vmin) 5 L

7. Description of Variant 6 **approved on 13/12/16**

The pattern and variants for use to dispense various grades of petrol which may include up to 85% ethanol ('E85').

8. Description of Variant 7 **approved on 13/12/16**

Any fuel dispenser of this approval now fitted with a vapour recovery system VARECO Plus (Stage II) – certified according to EN 16321. Vapour Recovery Stage 2 (aka VRII) vapour recovery and monitoring system and used up to a maximum flow rate of 45 L/min.

The vapour recovery and monitoring system is approved by the German TÜV SÜD Industrie Service GmbH authority.

Only vapour recovery components and systems as listed below and included in

The relevant TÜV approvals (and the approved components) are:

- (i) For collection of vapour:
- TUV certificate No. VR2-1509/2-114 EU
 - TUV certificate No. VR2-1509/2-115 EU
 - TUV certificate No. VR2-1509/2-116 EU
 - TUV certificate No. VR2-1509/2-117 EU
 - TUV certificate No. VR2-1509/2-118 EU
 - TUV certificate No. VR2-1509/2-119 EU
 - TUV certificate No. VR2-1602-133 EU
 - TUV certificate No. VR2-1602-134 EU

and the only approved system components are:

- Vapour recovery nozzles – Elaflex SLIMLINE 2 GR, Elaflex SLIMLINE 2, HUSKY V34/V34I/V34IS,
 - Coaxial hose – Elaflex model Conti Slimline 21/8 Coax, Elaflex model Conti Slimline2
 - Control valves – ASCO EMXX, Burkert model 2832/2832
 - Control board – TST, VC-Plus
 - Vapour recovery pump(s) – TST SG 0008 A, Durr MEX 0831-10/ MEX 0831-11 / MEX 0544
- (ii) For automatic monitoring of the vapour to fuel ratio and the only approved system components are:
- TST Vareco Plus vapour recovery monitoring
 - Vortex Flow sensors “VFS”

TEST PROCEDURE No 5/6A/234

Instruments shall be tested in accordance with any relevant tests specified in the national instrument test procedures.

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.

Tests should be conducted in conjunction with any tests specified in the approval documentation for any components used, including indicator/controller and submersible turbine pump (STP) hydraulic systems.

Maximum Permissible Errors

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

FIGURE 5/6A/234 – 1



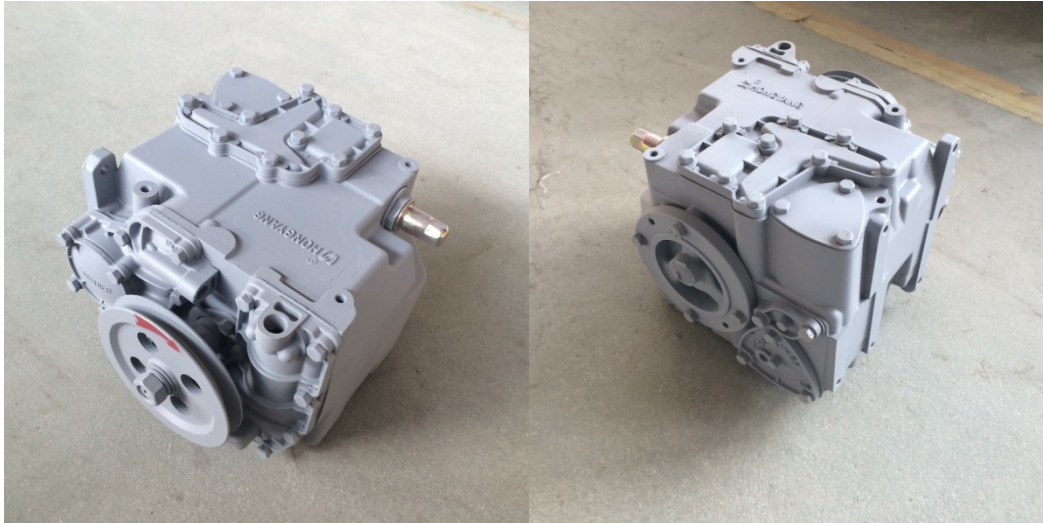
HONG YANG GROUP Model CMD1687SK-G Fuel Dispenser for Motor Vehicles (Pattern)

FIGURE 5/6A/234 – 2



HONG YANG GROUP Model CMD1687SK-G Fuel Dispenser Hydraulics (Pattern)

FIGURE 5/6A/234 – 3



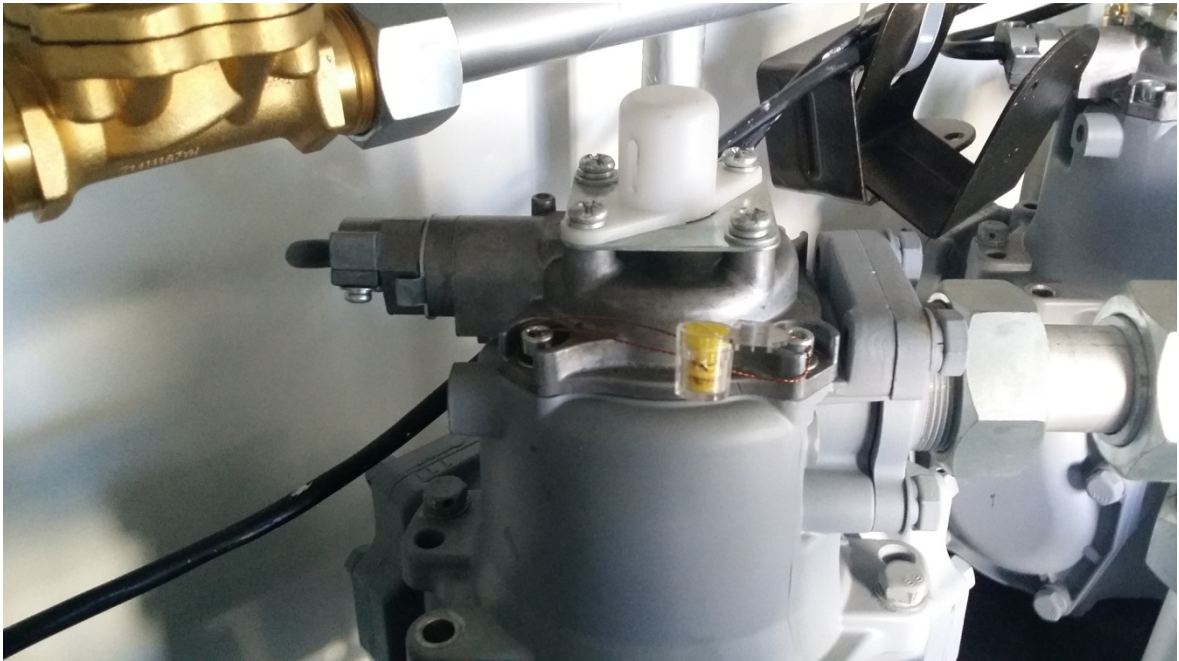
HONG YANG GROUP Model U102-B Pumping Unit

FIGURE 5/6A/234 – 4



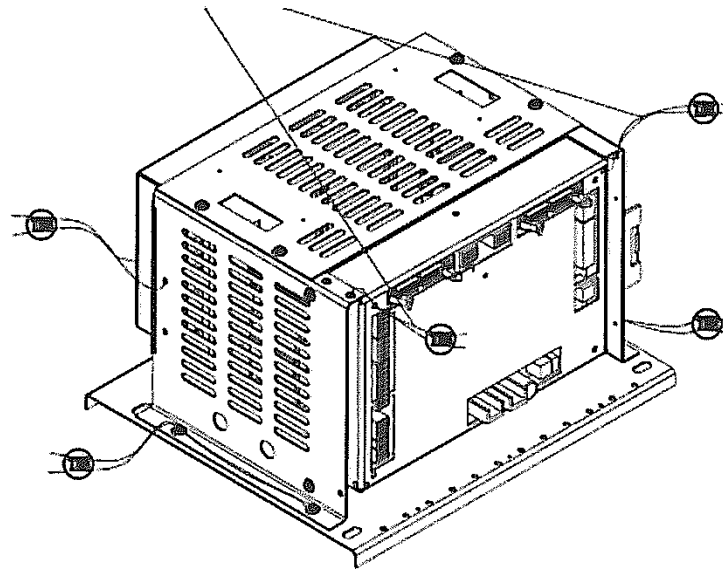
HONG YANG GROUP Model U101-B Flowmeter (incl. sealing)

FIGURE 5/6A/234 – 5

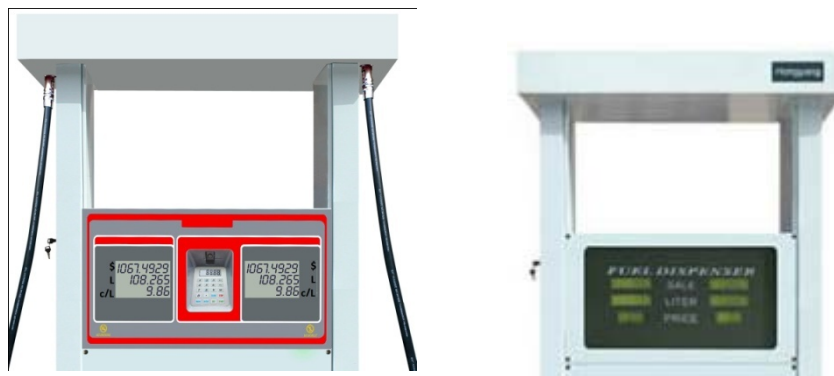


HONG YANG GROUP Model U501-C Pulse Generator (incl. sealing)

FIGURE 5/6A/234 – 6

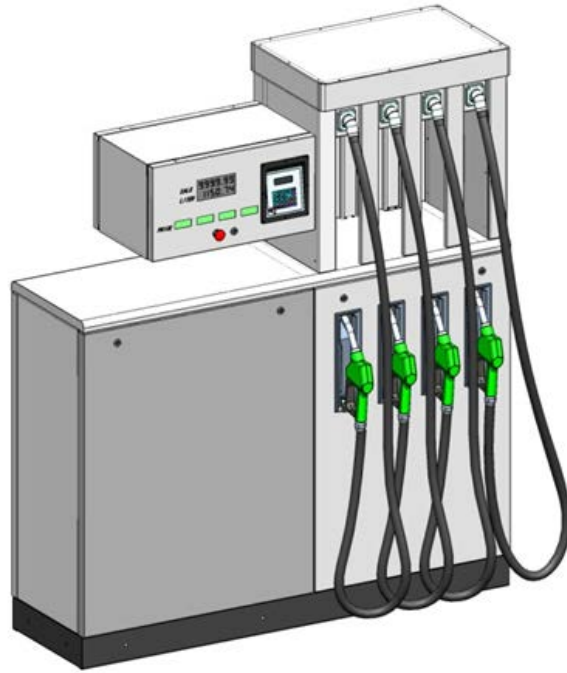


(a) HONG YANG GROUP Model S20 Calculator/Indicator (incl. any sealing)



(b) Dual Display & Single Display

FIGURE 5/6A/234 – 7



HONG YANG GROUP F Series (Variant 2)

FIGURE 5/6A/234 – 8



HONG YANG GROUP H Series (Variant 3)