

All Makes EUI & EUP Test



Electronic Unit Injectors (EUI) & Electronic Unit Pumps (EUP) Fuel injection Equipment

To meet the market demand for the service testing of EUI/EUP, **Hartridge™** have a range of kits to be used only with the AVM2-PC (20hp) test bench. The kits comprise a cambox with a test bench interface control unit plus EUI/EUP specific fitting kits and solenoid drive assemblies.

The HK870 is the base kit required for all applications. It consists of:

- Cambox assembly with injector fixturing clamping system.
- Control box assembly to interface with the AVM2-PC.

Main Features

The AVM2-PC provides the interface between the operator and the EUI/EUP kit, the fuel supply and measuring systems, as well as the drive and flywheel capabilities for current and future requirements.

Cambox

The cambox design is extremely rugged and has been applied to service level machines and many special purpose machines. These have been used by Cummins, Delphi Diesel and other OEM's for production testing, engineering and endurance running of unit injectors including latest technology products.

The cambox consists of:

- Rigid cast iron housing.
- Driven by standard AVM2-PC drive coupling.
- Robust manual clamping system.
- Easily removed cambox cover for rapid cam changing.
- Safety cover with interlocked access door.

Please note an external oil supply is not required.

The kits interface with an AVM2-PC using two modules:

- Control module.
- Solenoid power supply assembly.

Software

- Semi automatic test plan control.
- Interactive.
- Future proof - allows for new applications.
- The results can be saved, exported and printed as an Excel file.

Please note AVM2-PC software version 32 or later is required, this must be ordered separately.



Figure 1 AVM2-PC, EUI test screen display.

The chart below defines the requirements for “multiple applications”.

Vehicle Manufacturer	Detroit Diesel (Series 60)	Volvo	Mercedes Benz Actros	Mercedes Benz Atego	Audi/VW Seat Skoda	Caterpillar 3176	Caterpillar 3406 C15	Iveco Cursor 10/13	Iveco Cursor 8	*John Deere	Mack Renault	Scania	Volvo AO Upgrade	Cummins Select	Land Rover
Part Number	EUI	EUI	EUP	EUP	EUI	EUI	EUI	EUI	EUI	EUI	EUP	EUI	EUI	EUI	EUI
AVM2-PC Platform	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HK870 Base Cambox	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NTA4001 EUI Cradle General		✓				✓	✓	✓	✓	✓		✓	✓	✓	
NTA4002 EUP Injector Mount			✓	✓							✓				
AE35/1 (12/24v) Power Supply Unit	✓		✓	✓	✓			✓	✓		✓	✓		✓	
AE36/1 (90v) Power Supply Unit		✓				✓	✓			✓					✓
HK889 Highspeed Tappet					✓								✓		✓
AE33 Interface PCB	**As Required														
HB374 Software Update Kit	***As Required														

*Note: John Deere HK877 requires both the base Volvo kit HK872 and Volvo AO Upgrade HK883.

**Note: If the Common Rail Base Kit HB378 has not been previously fitted, AE33 Interface PCB assembly is required.

***Note: A software upgrade kit HB374 will be required for pre version 32 test stands.

The HK870 Base Cambox is the basis of the Delphi Network EUI/EUP solution.

The above kits cover the majority of each application listed. However, due to the vast array of “sub applications”, **Hartridge™** cannot guarantee the kits are exhaustive.

Complementary Products

- HH701 Testmaster 3
- HK862 EUI Poptest



Figure 2 HH701 Testmaster 3 complete with HK862 EUI Poptest

Additional Accessories

- HM1050 Trolley for EUI/EUP HK870 & Universal Common Rail base kit HB378 (bed plate level).
- HB388 Delphi Load Cell Kit.
- HK883 Delphi AO Jig.
- HT001 Injector Capnut Removal Tool.
- NTA4501 Delphi Nozzle Adaptor.
- NTA4502 Iveco 10/13 Nozzle Adaptor.
- NTA4503 Iveco 8 Nozzle adaptor.
- NTA4504 Bosch Nozzle Adaptor.
- NTA4505 VW Nozzle Adaptor.
- NTA4507 Land Rover Nozzle Adaptor.
- NTA4508 DD (series 60) Nozzle Adaptor.
- HS237 7 Bar Supply Upgrade.



Figure 3 HM1050 Trolley



Figure 4 HK883 Delphi AO Jig



Figure 5 HB388 Delphi Load Cell Kit



Figure 6 NTA4501 Delphi Nozzle Adaptor

Application Kits

Application kits are made up of a number of injector specific components selected from the following items as required for each application:

- Application specific cam and push rod.
- High speed tappet assembly (VW and Land Rover applications).
- Fuel Sleeve with oil supply and return through quick connectors.
- Nose Piece.
- EUP injector sleeve, HP Pipe and clamp pillars.
- Application data sheet and disk.

Why Choose Application Specific Cams Versus a Single Cam?

The **Hartridge™** philosophy is to test the unit injector and pumps under conditions that closely match the production test and engine conditions. The cams used in the **Hartridge™** EUI/EUP kits mimic engine injector conditions as closely as possible so that:

- Correct peak pressures are achieved.
- Pump/injector tested over full stroke.
- EUI/EUP can be accurately tuned for repeatable performance and lower emissions.
- The capability of the test equipment is superior to that of a single cam profile kit.

HK870 Technical Specification

- Max speed:
 - Standard tappet assembly 1200rpm.
 - High speed tappet 2400rpm.
- Max cam lift 17mm from base circle diameter of 60mm.
- Max delivery 550 mm³/st.
- Clamp load up to 1.5 tonnes applied using load screw.

Parameters - programmable for each application

- Bench speed.
- Solenoid coil drive peak current, peak time and hold current.
- Solenoid coil pulse duration set in camshaft degrees or time in milliseconds - min. resolution 0.01 milliseconds.
- Solenoid coil pulse delay from 1 pulse per rev signal.
- Limits max and min for metering, timing and coil resistance measurements.

Measured Parameters

- Speed (rpm).
- Choice of deliveries as per AVM2-PC.
- Supply pressure (bar/psi).
- Solenoid coil resistance (ohms).
- Solenoid coil timing delay from electrical supply pulse (deg cam or milliseconds).
- Overall timing delay from electrical supply pulse (deg cam or milliseconds).

Installation Information

- Weight of dry cambox assembly with typical kit fitted 71kg (156lb).
- Weight of control assembly 5kg (12lb).
- Weight of assembly power supply 6.5kg (14lb).
- Electrical power supply single phase 85/265 volt 47/100 Hz fused 5A with IEC connector.

Contact your local **Hartridge™** distributor
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Continuous development is taking place. **Hartridge™** reserves the right to alter the design and/or specification without prior notice.

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