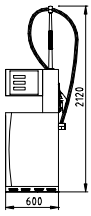
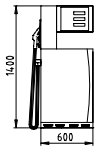
TATSUNO-BENČ EUROPE A.S.

SHARK BMP500.S - JUNIOR



Description Models & Options



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CONTENTS

Introduction

The purpose of this publication is to assist in the identification of the range of SHARK BMP500.S JUNIOR models.

The basic information for the SHARK BMP500.S JUNIOR and descriptions of the various options are included.

This publication is part of a set of documents specifically produced for the SHARK BMP500.S JUNIOR range. For further technical information, please refer to relevant associated publication.

Presentations SHARK JUNIOR

Hydraulic System TATSUNO

The fuel dispensers SHARK BMP500.S JUNIOR serve for dispensing of liquid oil products, ethanol mixtures or LPG into road vehicles on retail and commercial outlets. The dispensers are equipped by the high-quality Japan hydraulic system TATSUNO and by the reliable electronic calculator PDE or PDEX (Czech Republic). The fuel dispensers are operated both in the manual mode (i.e. off-line), and in the automatic mode, where the fuel dispenser is linked with the kiosk control system and the data concerning volume, sum and price are transmitted to POS.

Sophisticated Design & Fibreglass Covers

The fuel dispensers TATSUNO BENČ, version SHARK BMP500.S, have the body parts (guards, doors, covers…) made of fireproof laminate (reinforced plastic) approved for the scope of use by the State Test Laboratory (Certificate of FTZÚ 04ST 0083). Supporting dispenser skeleton parts are made of steel lacquered sheet 0.8 - 1 mm thick and/or of stainless sheet. Standard colour version of the fuel dispensers TATSUNO BENČ: combination of white (MM710) and grey colour (RAL7040)**.** Each fuel dispenser is equipped by the **hydraulic unit** (dispensing monoblock + flow meter) of the Japanese company **TATSUNO**. We are speaking about the time-tested type of hydraulic unit accepted globally characterized by high reliability and long total service life. The dispensing unit is equipped by the inlet and outlet filter, air and vapour separator, check valve and rotary pump with operating pressure control. The four-piston flow meter can be setup through a single piston. The main shaft of each flow meter is coupled with a high-reliable double-channel photoelectric measuring **pulser** of explosion-protected design (Ex). Each fuel dispenser is equipped by the **electronic calculator** with its own self-checking unit and by the **displays** displaying the dispensed amount, fuel volume in litres and unit price . Displays of the fuel dispensers specified for commercial outlets display only the dispensed fuel volume in litres. The **dispensing hoses** are made of high-quality rubber resistant to fuel in antistatic version. The fuel dispensers are delivered with the automatic stop-nozzle of the **ZVA** company (Elaflex) as the standard..

Specifications

Approvals

The SHARK BMP500.S JUNIOR is in full conformity with European weight and measure, safety and environment regulations:

- The equipment is certified by The Czech Metrologic Institute Brno, notified body No. 1383. The conformity assessment procedures were performed by modules "B" (product type examination) + "D" (quality assurance of the production process) according to the Government Decree No. 464/2005 Coll., which stipulates technical requirements for measuring instruments, and which implements the European Parliament and Council Directive 2004/22/EC.
- The EC Type Examination Certificate for **Fuel dispensers** No. TCM 141/07-4491. Test Report No. 6031-PT-P018-06 performed in conformity with OIML R 117, OIML R 118 and OIML D 11.
- The EC Type Examination Certificate for **LPG dispensers** No. TCM 141/07-4493. Test Report No. 6031-PT-P019-06 performed in conformity with OIML R 117, OIML R 118 and OIML D 11.
- TATSUNO-BENČ EUROPE a.s. has obtained the **Certificate of the Management System Quality** No. 0119-SJC006-07 from The Czech Metrologic Institute, thus having fulfilled the prerequisite of eligibility for declaration of conformity with a type based on quality assurance of the production process of measuring instruments according to Annex No. 2, module „D" (Art. 6) of the Government Decree No. 464/2005 Coll
- The dispensers are certified by the authorized person No.210 - The Physical Technical Testing Institute Ostrava-Radvanice,as suitable for use in Potentially Explosive Atmospheres Directive 94/9/EC, and marked to be in accordance with European Dispenser Construction Standard EN 13617-1. The dispensers SHARK BMP500.S were certified as product by notified body No. 1026.
- ATEX Type Certificate for **fuel dispensers** No. FTZÚ 03 ATEX 0022.
- ATEX Type Certificate for **LPG dispensers** No. FTZÚ 03 ATEX 0025.
- The main safety certifications are : FTZÚ (Czech), PTB and TÜV (Germany)
- Parts subject to potential explosion hazards are in accordance with the directive ATEX 94/9/CE
- This dispenser is constructed in conformity with the requirements of all applicable European Directives (ATEX 94/9/EC; EMC 89/336/EEC)
- The components used within the dispenser, including connection facilities, are selected in accordance with the European Standard EN 50014 (Electrical apparatus for potentialy explosive atmosphered), and the supplementary Standard listed therein. Diesel dispensers do not create an explosive hazard, but due to the probality of these being in close proximity to gasoline dispensers, the same construction rules are applicable.

Basic Specification

Fuel dispenser hydraulic unit

Delivered flow rate :	- standard speed	40 dm^3/min (30 ÷50 dm^3/min)
	- high speed/H	80 dm^3/min (70 ÷ 90 dm^3/min)
	- ultra-high speed /UH	130 dm^3/min (120 ÷ 150 dm^3/min)
Accuracy of dispensing :		± 0.5 % at the minimum delivery of 2 dm^3 (2 litre)
Maximum operating pressure:		0.18 MPa (1.8bar) ; 0.25 MPa (2.5bar) for /H and /UH
El. motor :		three-phase, 3x400V; 0.75 kW; 1395 rpm
Electromagnetic valves :		230V AC; 50 Hz; 5W or +24VDC/max.1A

LPG dispenser hydraulic unit

Delivered flow rate :	50 dm^3/min (30 ÷50 dm^3/min)
Accuracy of dispensing :	± 1.0 % at the minimum delivery of 5 dm^3 (5 litre)
Maximum operating pressure:	1.8 MPa (18 bar)
Electromagnetic valves :	230V AC; 50 Hz; 5W or +24VDC/max.1A

Electronic calculator

Power supply :	~230 V; +10% -15%; 50 Hz ± 5 Hz
Power input :	max. 150 VA

Displaying units

volume	0.01 to 9999.99 dm^3
cash amount	1 to 999999 currency unit
unit (grade) price	1 to 9999 currency unit/ dm^3

Environmental conditions

Operating temperature :	- 25°C to +55 °C for the standard model
	- 50°C to +55 °C with display low temperature kit
Dynamic viscosity of fluid:	0.5 - 10 cp (5 - 100 .10^{-4} Ns/m^2)
Relative humidity:	5% to 95% non-condensing

How to use this document

Model identification

On the following pages, a code is ised to identify the model. This code is explained below.

The first number in TBE (TATSUNO-BENČ EUROPE) code is fixed "5" and means dispensers SHARK series BMP500.S. The second used in matrices related to the number of pumping units (products). The third number related to the number of hoses. The characters "S"after point are fixed and means model SHARK JUNIOR model (1400mm). The "D" at the end means that dispenser is "double sided", the "L" left one-sided and the "R" right one-sided. Dispenser orientation is determined by viewing the dispenser of the direction of car arrival. For example:

- BMP511.SL one-product, one hose, single-sided version, left-sided dispenser,
- BMP511.SD one-product, one hoses, double-sided dispenser.

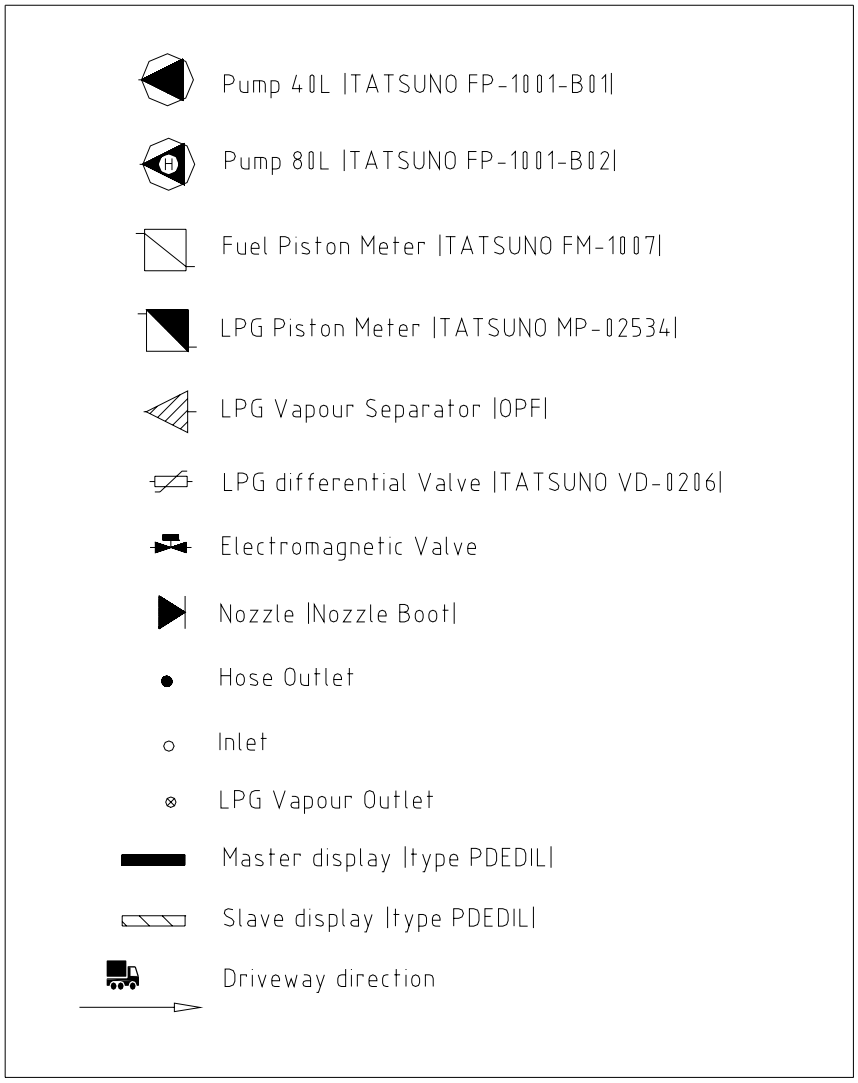
The following identification of "speed" are used to qualify the nominal flow rates at which products are delivered by the dispensers:

- without identification, a nominal flow rate of 40 l/min,
- **/H** means High Speed, a nominal flow rate of 80 l/min,
- **/UH** means Ultra-High Speed, a nominal flow rate of 130 l/min.

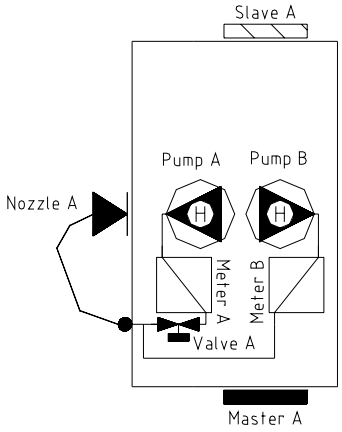
The following identification are used:

- **/LPG** dispenser or module for LPG (liquified propane-butane),
- **-HS** flexible hose spring

Symbols



Convention



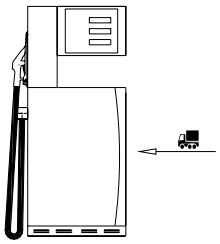
Models

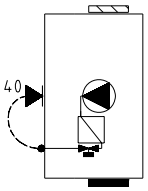
Standard models

Model BMP511.SD

- One-product, one-hose dispenser island oriented
- Standard speed 40L/min
- Double-sided

Dispenser has two LCD displays. Both displays Master and Slave show the same values.

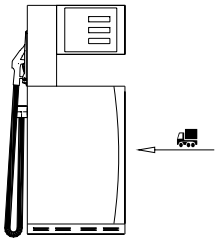




Model BMP511.SL

- One-product, one-hose dispenser island oriented
- Standard speed 40 L/min
- Single-sided version, left-sided

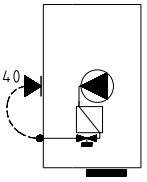
Dispenser has only one LCD display on the left side from the direction of car arrival.



Model BMP511.SR

Same ss above. Right-sided version

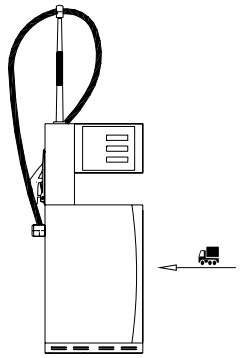
Dispenser has only one LCD display on the right side from the direction of car arrival.

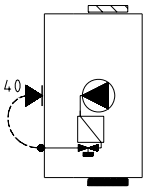


Model BMP511.SD -HS

- One-product, one-hose dispenser island oriented with hose spring
- Standard speed 40 L/min
- Double-sided

Dispenser has two LCD displays. Both displays Master and Slave show the same values.

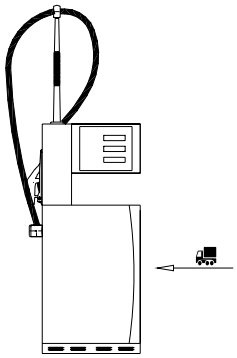




Model BMP511.SL -HS

- One-product, one-hose dispenser island oriented with hose spring
- Standard speed 40 L/min
- Single-sided version, left-sided

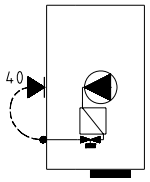
Dispenser has only one LCD display on the left side from the direction of car arrival.



Model BMP511.SR -HS

Same as above. Right-sided version.

Dispenser has only one LCD display on the right side from the direction of car arrival.

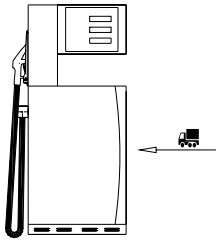


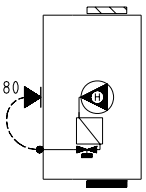
High speed models

Model BMP511.SD /H

- One-product, one-hose dispenser island oriented
- High speed 80 L/min
- Double-sided

Dispenser has two LCD displays. Both displays Master and Slave show the same values.

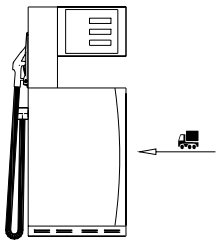




Model BMP511.SSL /H

- One-product, one-hose dispenser
- High speed 80 L/min
- Single-sided version, left-sided

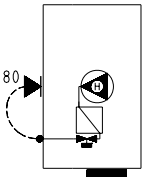
Dispenser has only one LCD display on the left side from the direction of car arrival.



Model BMP511.SR /H

Same as above. Right-sided version.

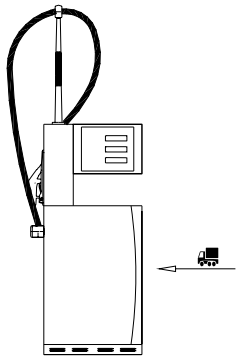
Dispenser has only one LCD display on the right side from the direction of car arrival.

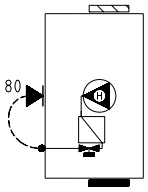


Model BMP511.SD /H -HS

- One-product, one-hose dispenser island oriented with hose spring
- Standard speed 80 L/min
- Double-sided

Dispenser has two LCD displays. Both displays Master and Slave show the same values.

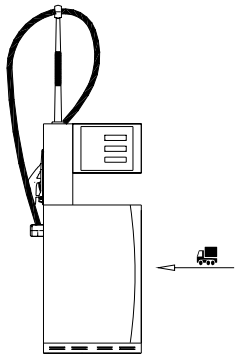




Model BMP511.SL /H -HS

- One-product, one-hose dispenser island oriented with hose spring
- Standard speed 80 L/min
- Single-sided version, left-sided

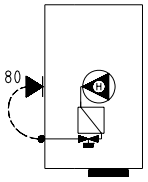
Dispenser has only one LCD display on the left side from the direction of car arrival.



Model BMP511.SR /H -HS

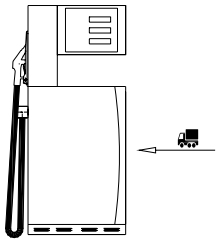
Same as above. Right-sided version.

Dispenser has only one LCD display on the right side from the direction of car arrival.



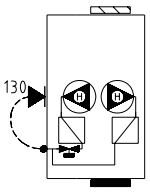
Ultra High speed models

Model BMP521.SD /UH

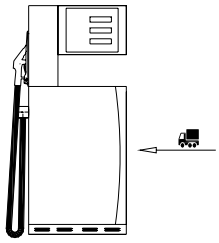


- One-product, one-hose dispenser island oriented
- Ultra high speed 130 L/min
- Double-sided

Dispenser has two LCD displays. Both displays Master and Slave show the same values.



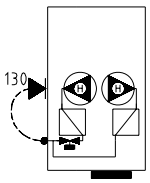
Model BMP521.SL /UH



- One-product, one-hose dispenser island oriented
- Ultra high speed 130 L/min
- Single-sided version, left-sided

Dispenser has only one LCD display on the left side from the direction of car arrival.

Model BMP521.SR /UH

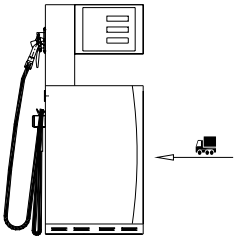


Same as above. Right-sided version.

Dispenser has only one LCD display on the right side from the direction of car arrival.

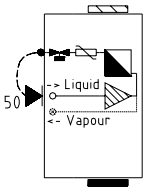
LPG dispensers

Model BMP511.SD /LPG

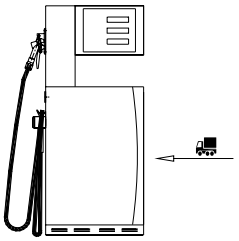


- LPG (Liquid Petroleum Gas) one-hose dispenser island oriented
- Standard speed 50 L/min
- Double-sided

Dispenser has two LCD displays. Both displays Master and Slave show the same values.

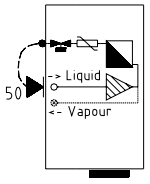


Model BMP511.SL /LPG



- LPG (Liquid Petroleum Gas) one-hose dispenser island oriented
- Standard speed 50 L/min
- Single-sided version, left-sided

Dispenser has only one LCD display on the left side from the direction of car arrival.



Model BMP511.SR /LPG

Same as above. Right-sided version.

Dispenser has only one LCD display on the right side from the direction of car arrival.

Standard features

Hoses

- European coaxial for standard speed with vapour recovery — Length: 4.00 m
- DN21 (3/4") for Standard Speed and High Speed (/H) without vapour recovery — Length: 4.00 m
- DN25 (1") for Ultra High Speed (/UH) Speed without vapour recovery — Length: 4.00 m

Nozzles

ZVA automatic:

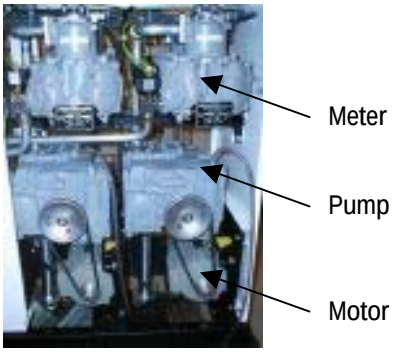
- DN21 (3/4") for Standard Speed
- DN25 (1") for High Speed (/H)
- DN32 (1 1/4") for Ultra High Speed (/UH)

Nozzle Boot

- TBE aluminium nozzle boot with the nozzle boot lock that enables owner to lock the nozzle to its boot when the forecourt is closed

Pumping Unit

- **TATSUNO FP-1001-B01** internal gear pump for Standard Speed with integrated air separator, check valve , overflow prevention valve and inlet&outlet strainer. The pump operation speed is enabling the dispenser to deliver standard flow 40 litres/minute. Check valve is designed to hold liquid in the pump between the pump stops. The build-in check valve can protect the pump from leakage of liquid by keeping the pipe negative pressure between the pump and underground tank. Overflow valve prevents the liquid from overlow through the air/vent, when the liquid level in the float room rises abnormally. The Inlet strainer (150µm) protects the pump from dust and foreign particle in liquid. The outlet strainer (200µm) is highly effect for increasing clean gasoline delivery.



- **TATSUNO FP-1001-B02** internal gear pump for High and Utra-High Speed diesel applications with integrated air separator, check valve , overflow prevention valve and inlet&outlet strainer. The pump operation speed is enabling the dispenser to deliver high flow 80 litres/minute. Two pumps joined together are enabling the dispenser to deliver ultra-high flow 130 litres/minute.
- Both suction pumps use the same electrical motor, the same filters and the same inlet connection.

Flexible coupling

- Flexible metal connector from pump unit inlet to flange of the pipe that comes from underground to feed the dispenser.

Metering Device

- **TATSUNO FM-1007** mechanically calibrated 4-piston meter with integrated TATSUNO EK-1025 pulse generator (100 pulses per liter).
  The FM-1007 high accuracy piston meter converts the flow of petrol sent from pump to the rotating movement with craftshaft by means of piston's reciprocating movement for display on counter.

  Technical specification

Cylinder capacity	0.5 l/rev.
Measuring capacity	3 - 90 litres/minute
Measuring accuracy	within ± 0.5%
Maximum working pressure	0,3 MPa (3 bar)
Adjusting device action around neutral position	cca 1% (one step = 0.08%)

- **TATSUNO M-02534** mechanically calibrated 4-piston LPG meter.
  The M-02534 high accuracy piston meter converts the flow of LPG sent from pump to the rotating movement with craftshaft by means of piston's reciprocating movement for display on counter.

  Technical specification

Cylinder capacity	0.5 l/rev.
Measuring capacity	5 - 50 litres/minute
Measuring accuracy	within ± 1.0%
Maximum working pressure	1,8 MPa (18 bar)
Adjusting device action around neutral position	cca 1% (one step = 0.08%)

LCD display

- LCD display (type PDEDIL) with LED backlight
- Configuration:
  - volume 6 digits, height 1" (25.4 mm)
  - cash amount 6 digits, height 1" (25.4 mm)
  - unit (grade) price 4 digits, height 1" (25.4 mm)

Motor

- Three phase 230/400 VAC - 50Hz, Ex certified, with power 0.75kW

Valves

- Electromagnetic two-state valves 230VAC - 50Hz, Ex certified, with power 5W

Electronics

- The PDE and PDEX calculators developed by TATSUNO-BENC EUROPE company incorporates the latest electronic technology allowing for maximum efficiency and increased flexibility to adapt all operating requirements. For dispensers SHARK BMP500.S are standardly used calculators variety PDEDUO/PDEDUOX .
- Calculators PDE and PDEX are scalable and configurable so that it can drive the required hydraulic configurations and options. The type and position of connectors are organised for ease of cabling at production and in the field. The packaging is designed to protect the main components.

- The electronic calculator is located in the calculator head housing which also contains external power supply, contactors and thermal overload protection for the pump motors, mains safety switch, outdoor payment terminals and media systems (where fitted).
- The TATSUNO EK-1025 pulse generator sends signals to the calculator from one or both sides of the dispenser which is checked, counted and displayed on the unit and the information transmitted via data communication or remote control into the service station
- The PDE/PDEX calculator can incorporate an Electronically Controlled Vapour Recovery system (ECVR) using the programming tools of the calculator to perform the necessary calibration.
- Data communication between PDE/PDEX calculator and forecount controller or Point of Sale (POS) are made by proprietary PDE protocol or some major existing proprietary or international standard protocol combinations.

Frame and body

- Covers from certified fire-proof laminate (fibre glass)
- Skeleton parts are made of steel laquered sheet and of stainless sheet
- Standard painting is combination of white (MM710) and grey colour (RAL7040)
- IP23- rated hydraulic zone (water ingress resistant)
- IP54-rated electronic head (water and dust ingress resistant)

Options

ECRV-Bürkert system

- This is Electronically Controlled Vapour Recovery system, in which a ASF Thomas or Dürr Technic vapour-pump (one per side, using the motor for both pumps together) electronically controled proportional valves Bürkert with controlling electronics Bürkert (one per side) and on/off valves (one per hose) are the main parts of the system. The on/off valves will be delivered as an integrated part of the ZVA nozzle.
- ECRV system is standardly equipped with vapour flow sensor VRS1 (one per side) and vapour recovery LED signalling (one per side). Vapour flow Green/Red LED signalling is integrated part of display. Sensor VRS1 enables to stop delivery immediately in case of vapour recovery failure.
- This optiones comes standard with a return-pipe per dispenser, which means that vapour from all products is returned to the same underground storage tank.

ECRV-TBE system

- This is new Electronically Controlled Vapour Recovery system, in which a ASF Thomas or Dürr Technic vapour-pump (one per side, using the motor for both pumps together) electronically controled proportional valves Danfoss (one per side) and on/off valves (one per hose) are the main parts of the system.. The on/off valves will be delivered as an integrated part of the ZVA nozzle.
- ECRV system is standardly equipped with vapour flow sensor VRS1 (one per side) and vapour recovery LED signalling (one per side). Vapour flow Green/Red LED signalling is integrated part of display. Sensor VRS1 enables to stop delivery immediately in case of vapour recovery failure.
- This optiones comes standard with a return-pipe per dispenser, which means that vapour from all products is returned to the same underground storage tank.
- ECRV-TBE wil be available soon

GRVP system

- This acronym stands for "Gas Rückfuehrung Ventil mit intergiertem Proportionalventil" (Vapour Recovery nozzle with integrated proportional valve): a mechanically controlled vapour recovery system, in which a ASF Thomas or Dürr Technic vapour pump (one per side, using one motor for both pumps together), mechanically controlled proportional and on/of valves (one per hose) are the main parts of the system. The proportional and on/off valves are delivered as an integrated part of the ZVA nozzle.
- GRVP system is standardly equipped with vapour flow sensor VRS1 (one per side) and vapour recovery LED signalling (one per side). Vapour flow Green/Red LED signalling is integrated part of display. Sensor VRS1 enables to stop delivery immediately in case of vapour recovery failure.
- This optiones comes standard with a return-pipe per dispenser, which means that vapour from all products is returned to the same underground storage tank.

Automatic Temperature volume Correction (ATC)

- This is the system of temperature volume correction of pumped product (diesel, gasoline, LPG). Additional electronic unit PDEINP is continuously receiving an information from Pt100 temperature sensor (one per product) which is builded in LPG air separator or pump outlet pipe (diesel, gasoline).

This information is sending to processor unit of the calculator PDE that according to temperature difference changes volume of delivered fuel..

- Reference temperature of the fuel is 15°C (without correction).
- ATC is related to mass density of the fuel (diesel, gasoline) or ratio propane/butane in case of LPG

VR status LED

- A green/red LED that indicates if the VR control system is working (vapour is flowing) or is out of order
- Status LED is part of the display

Mechanical totaliser

- The 7-digits mechanical totaliser TATSUNO is mechanically driven by the volume meter/pulser assembly.
- It is readable in the hydraulic compartment by opening plastic doors.

Electromechanical totaliser in calculator head

- This 7-digits totaliser for litres (one per hose) is driven by the calculator electronics (and not mechanically driven by the pulse generator).
- It provides an easy read-out of the figures
- It is positioned in the calculator head and it visible on the display plate.

Proportional Valves

- Electromagnetic proportional valves +24VDC/1A, Ex certified

Preset valve

- This valve differ from standard stop-valve in that they can control the speed of the fuel flow
- It enables the "slower" (<5 litres/minute) filling up of the tank that is needed where of preset option has been selected on the dispenser, via the forecourt controller or a payment terminal.
- Preset keyboard with push-buttons are not included in this option (see below).

Nozzle mounted sight glass

- A sight glass inserted between nozzle and hose

Nozzle boot lock

- A lock that enables owner to lock the nozzle to its boot when the forecourt is closed

LPG nozzle Policka VPP02

- Instead of standard nozzle Brevetti Nettuno T3.

Nozzle mounted break away coupling (non VR)

- This is a coupling that will prevent spillage if the hose and the nozzle (non VR) are forced apart in such a way as to cause leakage (e.g., a drive-off with the nozzle still inserted in the car tank opening).

Nozzle mounted break away coupling (VR)

- Same as above for VR hose and nozzle.

Flexible hose spring (non /UH hose only)

- A flexible hose spring which is attached to hose comes out of the dispenser top.
- Only available for non-UH hoses

Central system with submersible pumps

- The dispenser is not equipped with any suction pumps, but gets its fuel through submersible pumps.
- Instead of a ction pump, the "standard" submerged dispenser has only a filter.
- It wil be available for every hydraulic frame position.
- It must be fitted with a safety shear valve that makes sure that the liquid column is sealed if an accident should happen and the dispenser is disconnected from the island (not included).
- System must be equipped with an automatic level detection system installed in the storage tank, which prevents using the submerged pump when the liquid level reaches a minimum level above the inlet of the pump
- To prevent gas release there must be a delay of at least 3 seconds between the start of the submerged pump and start of the delivery. Parametrer of the calculator must be P72≥30.

Preset 4 push - buttons

- Preset keypad with four different push-buttons that allow the customer to choose a preset amount of money or preset volume of the fuel.
- Once a selection is made, the dispenser automatically delivers the right amount (via the electronics and the above mentioned preset valves.
- The buttons are grouped together, at an ergonomically well-considered height on the electronics head near the display.
- Preset valves are not included in this option (see above).

Infrared remote control

- The dispenser is deliverd with th that can be programmed via IR remote controler PDERTx
- This infrared remote control is not an option for the dispenser and must be ordered separately.

Ultra-low temperatur kit (-45°C)

- A set of modifications (heaters in displays etc.) allowing dispenser to operate at -45°C.

Fleet management system compatible

- An additional pulse output, nozzle output and pump release signal are provided to be connected to a third party fleet management system.

Voice synthetiser

- This option gives messages to guide the user when operating the dispenser. It consists of load speaker and additionaly functionality in the calculator (unit PDEREP).

Dimension specification