



The EDS Ultra series:

"....an ultra-lightweight, quick-change, and reliable drink system, from a quality engineering company....."

Audi Sport's Allan McNish

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This unique system is designed for endurance racing and provides a hygienic and leak-free system of driver hydration on demand. The EDS range has been utilised by top LMP and GT teams/manufacturers at the Le Mans 24hr Race and ALMS events since its introduction in 2001. Bespoke versions have also been utilised by leading DTM manufacturers and F1 teams. Over 500 systems sold worldwide.

The EDS Ultra 1.0 system has undergone significant modification resulting in the following features:

- Lightweight – carbon-fibre and ABS plastic housing.
- Packaged in a single housing.
- Inline valves to eliminate unwanted g-force induced drink flow.
- 1.0 Ltr capacity drink bottle cartridge.
- 0.6ltr & 1.5ltr systems are also available.

EDS Ultra 1.0 Lt Package Specification

- 1 off Pump/Bottle Holder with AS connector, dry break coupling.
- 3 off 1.0 Ltr Driver Drinks Bottles with screw cap.
- 3 off Bottle tops with quick release dry-break coupling and non-return valve.
- 3 off Crash helmet dry-break quick release couplings and tubing.
- 1 off Helmet to pump unit fly lead with quick release dry-break couplings.
- 1 off Prime/Drain syringe with dry-break quick release coupling and tubing.
- 1 off AS connector to fit into the car loom and connect to the main unit.
- 1 off AS connector heat shrink boot to fit above connector.
- 4 off Sterilising tablets.
- Insulation for all tubing.

The switch to operate the system is not included, nor is the wiring loom for the car. A 12-15v supply, via a switch (preferably steering wheel mounted) and fuse will need to be provided in the car. The correct AS connector, with heat-shrink boot, is provided for the installation.

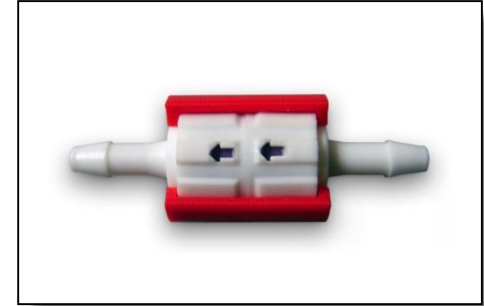
Only operate the system with a bottle in place and with all of the hoses connected (including a helmet “outlet” hose). Failure to do so can cause pump seal failure due to internal pressure build up from the “closed” system.

For hygiene reasons, always have a bottle connected and in place at all times, whether full or empty.



Installation

- The bottle holder should be mounted on a bulkhead inside the cockpit (normally the seat back bulkhead) and as close to vertical as possible.
- Make sure the delivery tube is not kinked and that the bottle can be removed easily.
- Do not over tighten any cable ties securing any of the hoses as this can cause them to be crushed and can damage the hose insulation.
- Locate the bottle so that the driver or the driver assistant can replace it during pit stops.
- Mount the bottle housing as close as possible to the driver to reduce the length of pipe where possible. This makes priming the system easier and reduces any heat transfer into the delivery hose.
- When reducing the length of the delivery hose, the non-return valve should be kept as close as possible to the driver and note the direction of flow on the valve (indicated by an arrow).
- Velcro can be used on the delivery tube so that a driver getting out of the car disconnects from the system placing the helmet tube on the dash or shoulder strap ready for the next driver.



Power

- The Deutsch AS Micro connector used on the pump housing is part n°: Deutsch ASL-006-05-PB-HE.
- The wiring loom on the car should be terminated with the corresponding in-line connector Deutsch ASL-606-05-SB-HE (supplied).
- Power supply:
 - Pin 1 = 12-15v DC
 - Pin 2 = 0v Ground.
 - Pins 3, 4 and 5 are unused.
- A push-to-make (non-latching) switch (not supplied) should be used on the steering wheel to momentarily activate the drinks system when required by the driver.
- The current at 12.0v is approximately 350mA.

Only operate the system with a bottle in place and with all of the hoses connected (including a helmet “outlet” hose). Failure to do so can cause pump seal failure due to internal pressure build up from the “closed” system.

For hygiene reasons, always have a bottle connected and in place at all times, whether full or empty.

Drivers Crash Helmets

- Customers should satisfy themselves that the integrity of the helmet has not been jeopardised and that no regulations have been breached by the fitting of the drink hose to the crash helmet.
- **Progressive Motorsport will not be held responsible for any damage caused by the modification to the crash helmet or be held responsible for any injury to the driver as a result of any modification to the crash helmet or by use of the EDS system under any circumstance.**
- Drilling holes in the crash helmet is not required and not allowed by most governing regulations. Most helmets do not need to be taken apart at all to fit the tube as described below.

Tools Required

- Tapered scribe or punch.
- External circlip pliers.
- Cable tie cutters.

Installation

- Make sure the tapered tool is covered with heat shrink so the paint is not damaged by the metal tool.
- Use the tapered scribe to create a 5mm hole in the mesh. The mesh will deform and does not need to be cut.
- Once the hole in the mesh is enlarged, use the external circlip pliers to open the mesh to the correct size. Be careful not to damage the paintwork.
- The vent already has a hole through the foam padding. Use the tapered tool to puncture the chin lining so that the tube can be pushed through.
- The tapered scribe might be required to open out the slot in the foam lining to allow the hose to fit easily.
- Push the hose through the hole in the mesh and through the hole in the lining.
- Make sure 30mm of hose is exposed inside the helmet and then put the small cable tie around the hose.
- Don't crush the tube by over tightening the cable tie.
- Cut the excess cable tie tail and make sure it is cut flush and square.
- It should be easy to push the hose further into the helmet if required.
- The driver will need to adjust the position of the cable tie or cut the hose to suit his requirement.
- The image to the right shows a similar installation on a Bell crash helmet.



Priming The System

- The EDS range of drink systems use a medical grade positive displacement pump which are self priming as they can pump both air and fluid.
- The system has been tested and sterilised prior to delivery.
- It is however recommended that the system is flushed through with clean water prior to each days use.
- **Due to the Non-Return-Valves used in the system, it may not be possible to bleed the system by sucking on the delivery tube. The valve pop-off pressure may not be reached.**
- The system can be flushing by following the procedure detailed below:
 - Fill the bottle with mineral water and place in the holder.
 - Make sure all the hose fittings are connected properly.
 - Take the syringe and make sure it is fully closed and empty.
 - Connect it in place of the crash helmet to the end of the delivery tube.
 - With the pump switched OFF, extend the syringe so that it sucks water through the system from the bottle. Repeat a second time if a long delivery tube is used.
 - Once there are no bubbles or air-locks in the system, the syringe can be removed.
 - Place an empty container over the end of the helmet tube (syringe removed) and press the button on the steering wheel so that the pump is activated.
 - Water should now be pumped through by the system and is ready to use.
- Alternatively the pump can just be operated as normal to pump water around the system. But make sure a helmet connector is in place on the delivery hose otherwise the system will be "closed" and will get damaged.
- **Only operate the system with a bottle in place and with all of the hoses connected (including a helmet "outlet" hose). Failure to do so can cause pump seal failure due to internal pressure build up from the "closed" system.**
- **For hygiene reasons, always have a bottle connected and in place at all times, whether full or empty.**

Sterilising The System

- The system has been sterilised and tested prior to delivery.
- It is however recommended that the system be sterilised after being installed in the car. Follow the steps below:
 - Fill one bottle with warm water and add a sterilising agent.
 - Let stand for 10 minutes and pump $\frac{3}{4}$ of the bottle through the system.
 - Rinse this bottle out and fill with mineral water and pump through the system again (do not completely empty the bottle). Repeat if necessary.
- Sterilise and empty the system before storing for any long period of time and again prior to use.
- Sterilise the system before and after every event.
- The bottles should also be rinsed out before storing and kept with the lids OFF.

Emptying The System

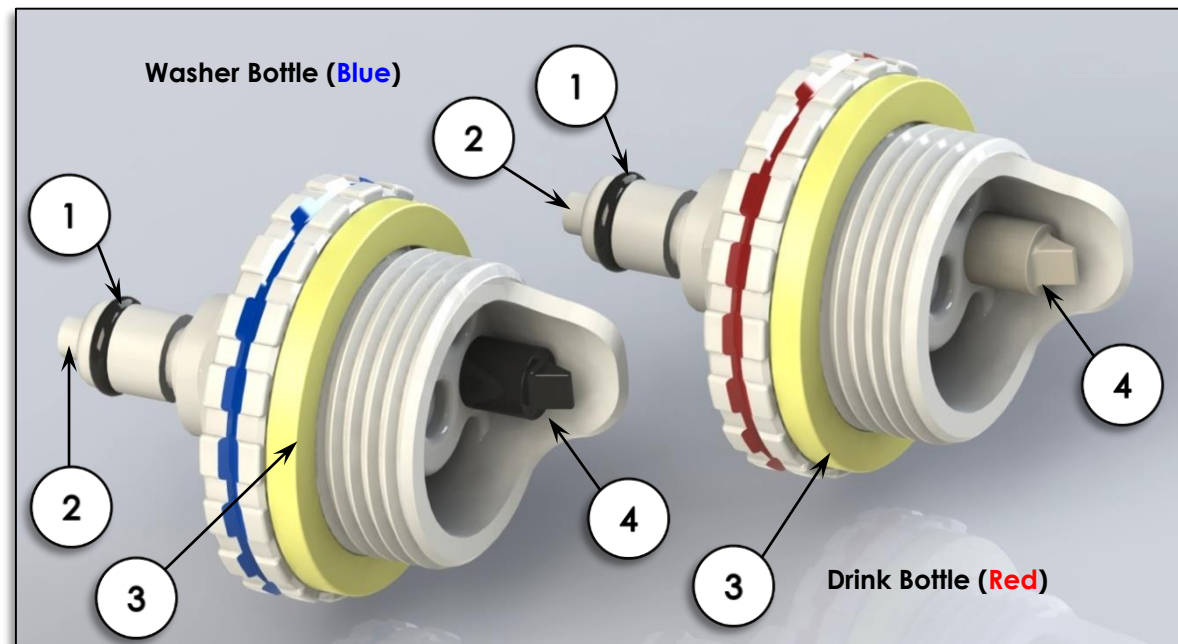
- After each event the system should be emptied of all water for hygiene reasons.
- The bottles should be rinsed out before storing and kept with the lids off.
- The female end of the syringe can be connected to the crash helmet hoses to remove used water.
- To empty the pump and delivery hose:
 - Place an empty bottle in to the holder.
 - Connect the male end of the syringe to the female end of the delivery hose and pull through all unused water until the system is empty.
 - Or with an empty bottle in the holder and with a helmet connector in place and with an empty bottle held at the open end of the helmet hose, operate the system for 30 seconds or until all fluid had been pumped out of the system.

Changing The Bottles

- During a pit stop, the bottle can be changed by pressing the red button which activates the connector inside the housing.
- Once pressed, the empty bottle can be pulled out and replaced.
- Make sure that the connector clicks into the release position before the bottle is removed.
- Make sure that the new bottle clicks into place when changed.
- The bottle must be placed carefully into the connector otherwise the metal tab can be closed prematurely by the bottle.
- Pressing the red button again to open the connector will reset the locking mechanism.
- Changing the bottles can be made easier by applying a small amount of Vaseline or Food Grade Silicone to the O-rings on the male connectors. This can also be applied to the helmet connectors if necessary. Do not get any on the bore of the connectors as they may become blocked or contaminate the drink.

Bottle Maintenance

- After each days use and when taken out of the car, the condition of the bottles and tops should be checked.
- Bottles and tops that have been dropped and damaged should not be used again as this can cause further damage to the system.
- The O-ring (1), Dry Break Valve (2), Bottle Seal (3) and Duck Bill (4) should be checked regularly to make sure that all are working correctly and not damaged.
- If any of these parts are damaged, they must not be used as it can cause leakage. Replace where necessary.
- The bottles and tops should be kept clean and inspected regularly to ensure that they remain in a correct working and hygienic condition.
- Bottles should never be stored with fluid left inside.



EDS – Installation Drawing – Ultra 1.0ltr

