



PROJECT: {INSERT PROJECT NAME}

PROJECT REFERENCE: {INSERT PROJECT NUMBER}

CUSTOMER: {INSERT CUSTOMER NAME}

DATE:

REVISION No.....0

Operation and Maintenance Manual

ACE Elver Pass Equipment



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1. Introduction and Purpose

ACE elver passes can be used where either a natural or man-made structure creates a barrier to the upstream migration of elvers, and are available in a number of forms. The key design features of a successful elver pass include:

- A substrate (commonly synthetic brush) to give elvers refuge when tired
- A steady flow of water to moisten the substrate and keep the elvers wet
- An attractant flow at the lower end of the pass
- Sufficient pass to allow the elvers to overcome the barrier on the upstream and downstream sides

The pass systems supplied by ACE are available with either gravity-fed or pump fed water feed, depending on the situation, and where power is required, this can either be mains 240v where available, or low voltage 12 or 24v powered by batteries, solar power or fuel cells. In this case, the power is 240v mains power.

2. Technical and Material specifications (summary)

Below is a description of the type of pass supplied, and the materials used in it's construction.

The pass supplied for this project is an electrically powered (240v), channel mounted pass. The system incorporates a trapping system which allows the elvers using the pass to be caught, counted and released safely, whilst keeping the water in the trapping tank fresh. The trapping box incorporates an overflow which can discharge water to prevent the tank over-topping in case the exit or trapping screen is blocked.

The trapping screen can be easily removed to allow the pass to be used without monitoring. The box also incorporates an optional rodding point with lockage lid.

The control panel is housed within the pumping station control building. The control panel, is connected through ducts to the submersible pump within the stilling well. The panel is designed to run during darkness, as elvers are known to migrate after dark, however it is possible to operate the pump full time if required.

Technical Specification:

Control System Supply Voltage:	240v ac (mains)
Control System Supply type:	Mains Power
Control System Control Options:	Low-light (runs at night) and full-time
Substrate Type:	Mixed 20 x 20 and 30 x 30 Brush substrate (in channel)
Pass Type:	Channel with flushing pipe

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Monitoring: Catch and release, or free passage

Materials:

Channel and lids	UV Stabilised HDPE (High Density Polyethylene) 200mm Nominal Internal width
Trapping Box	UV Stabilised HDPE with Stainless Steel 316
Elver Brush	HDPE backing board (12mm thick) Brilon Brush, at 70mm trim Bristles are at a 30mm staggered pitch
Fixings	A4 Stainless Steel
Stilling Well	UV Stabilised HDPE with Stainless Steel 316

3. Safety Considerations

The elver pass system is designed to be user-friendly and allow for maintenance and operation to be carried out safely by competent personnel.

The electrical equipment should only be modified or maintained by a qualified electrician, and requires full isolation prior to opening the cabinet.

The likelihood of injury when using the equipment is low, however we recommend the following be avoided during use:

- Trapping of fingers when opening the trapping box and removal of the catch-net.
- Tampering/modification of the electrical system without relevant competency and isolation.
- Falling into the watercourse during inspection/maintenance of the channel/pump.

Before use, an inspection of the visible elements of the pass is advised to check for damage/vandalism to ensure trouble-free operation. Any defects should be reported and rectified before continuing the operation.

4. Storage

The pass may only be used at certain times of the year, meaning that the pump may be left without operation for long periods. During these periods, we recommend the removal of these items, to ensure weather conditions do not damage the equipment (particularly in sub-zero temperatures).

Details of the item's removal are within this manual under section 7, and we recommend that the items are cleaned on removal and stored in dry conditions at room temperature.



Operation

Once commissioned, the system can be set to operate during darkness, and will operate automatically. If required, the system can also be run in “manual” mode which allows the pump to run at all times when selected.

Operation of the control system:

1. Ensure that the isolator on the front of the panel is set to ON and the door of the panel is closed.
2. To operate the pump automatically, after-dark, select PHOTO CELL on the control panel.
3. To operate the pump manually, with a constant flow, select MANUAL RUN on the control panel.
4. To turn off the pump, select OFF.

Water Feed:

The tap system should be adjusted to provide suitable water feed down the pass to have a moistening and attraction effect. This can be set to personal preference of the local operator, however care should be taken to keep flows low enough to allow passage.

The remainder of the flow is used to wash eels into the trapping/splitter box, ensuring no eels can return down the climbing section.

5. Cleaning and Maintenance

In most cases, the elver pass system requires very little cleaning, however where required, the channel can be flushed using clean water. The area which is submerged has no lids to allow easy access to elvers, and should be regularly inspected and flushed to reduce siltation.

Removal of components during cold weather

To prevent freezing or other damage, we recommend the removal of the pump from the system in sub-zero temperatures. This should be done by a competent person, and the system should be isolated.

1. Turn off the isolator on the control panel.
2. Remove the fuse from the inline fuse holder and retain for future use.
3. Remove the lid from the stilling well and lift out the pump.
4. Loosen the jubilee clip from the hose and pull the hose off the pump. (Retain jubilee clip in a safe place).
5. Disconnect the cable and remove the pump to storage (as section 4).



To re-deploy the above, reverse the procedure, ensuring that the fuse and isolator are disconnected until the procedure is complete.

6. Disposal

1. Remove the pass equipment and sort materials into groups.
2. Dispose of all metallic items via registered scrap dealers.
3. Dispose of all recyclable materials via registered carriers/local recycling. (HDPE can be recycled into reusable material, however used in it's pure form in this construction).

Appendices

- A. Drawings
- B. Material/CosHH Data
- C. Technical Data
 - a. Pump
 - b. Electrical Schematic