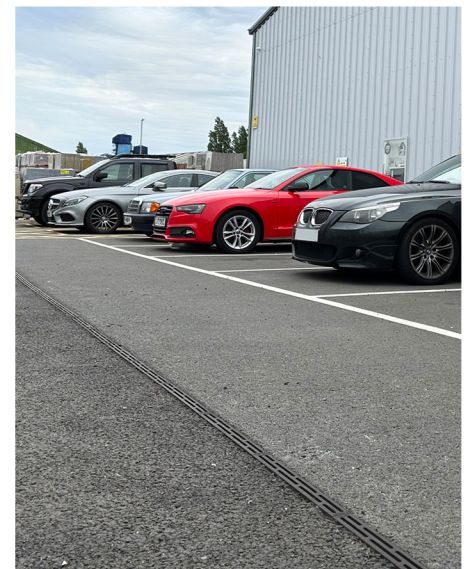
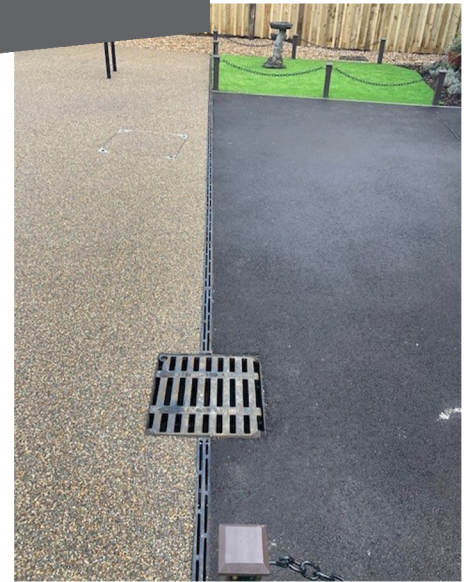
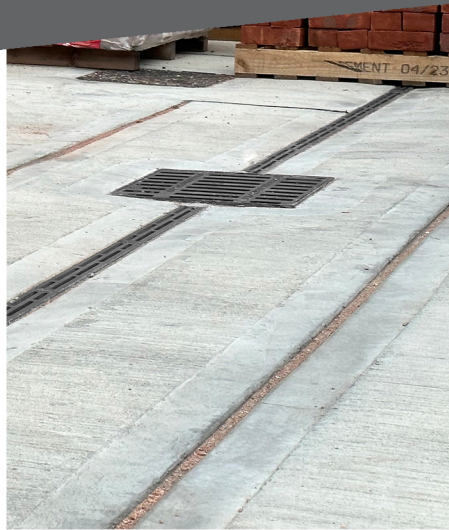




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Swarm Aqua® Surface Water Drainage Installation Guide



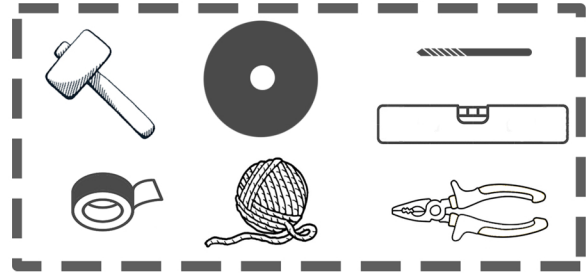
We Create Exceptional Solutions. EJ is the world leader in the design, manufacture and distribution of access solutions for water, sewer, drainage, telecommunications and utility networks worldwide.

● Before you start

You will need some tools to hand for the installation process of all Swarm Aqua® channels.

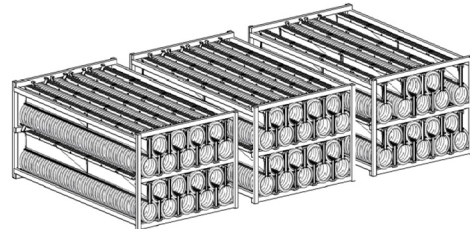
- Soft mallet
- Small angle grinder
- Drill bit
- Tape
- Spirit level
- String/Level
- Pliers

We also update our installation details and guides periodically, latest versions are available on our website www.swarmwm.co.uk.



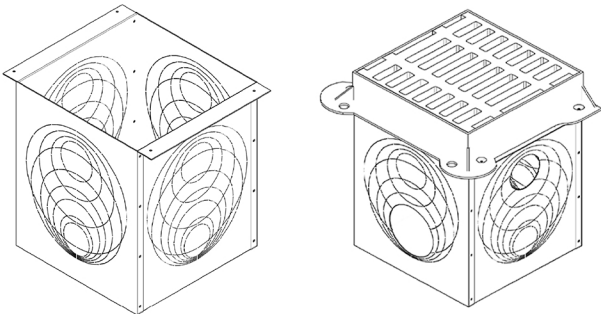
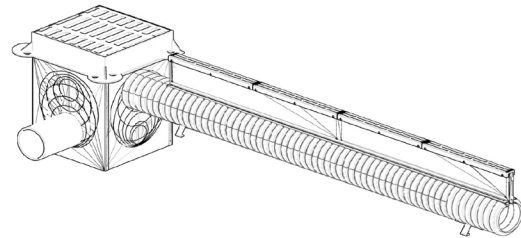
● Unpacking Channels

Swarm Aqua® channels are delivered as bundles that are 2m wide. Each bundle is made up of individual rows of channels, so when unpacking your Swarm Aqua®, start at the top of the bundle by removing one channel, then one row at a time. Place the channels alongside the trench, ensuring the male and female ends are facing in the same direction.



● Combined Access/Outlet Boxes

The combined boxes supplied with Swarm Aqua® have perforations to suit both the channel and any outlets that will be connected. The box with an outlet connection to an external drainage system should be installed downstream if laid to a fall. You should use a chamber connector available from Swarm if connecting a box to the end of the Swarm Aqua® channel without a collar, or a 300mm length of pipe if using a collar end. Use a small angle grinder to remove the desired



Connecting Boxes Flush with Swarm Aqua®

When a flush fit finish to the Access box is required it can be achieved by inserting the collar end of the channel into the correct size preformed knockout in the box and by making a 50mm slot cut out on the flange part of the iron frame to allow the channel throat to butt up to the box. When the uncollared end of the channel is going into the box our chamber connector can be used once the twinwall pipe part has been removed. By inserting just the chamber connection collar into the box a larger diameter knockout section in the access box will have to be utilised to allow for the wider collar.

Please note access box connectors can be fabricated on site

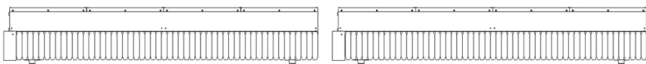


● Installing Swarm Aqua® Channels

Place the box so that the grating is at the finished surface level. Connect any outlets and the first Swarm Aqua® channel. A Chamber Connector connects the channel to the box on the end without a collar and a length of standard twinwall pipe can be used with the fitted collar to the same effect.

Use a soft mallet to raise or lower the channels as required to keep the line of drainage straight and level. Ensure all joints are snug. Connection collars are connected to the channel body to ensure a positive connection of Swarm Aqua®. These collars must be removed by removing the rivets on this item when using some accessories such as end caps or transition pieces. Pliers may be required to adjust the castellations.

Bed or haunch around the stabilising feet of the Swarm Aqua® channels to keep them in place until the trench is ready for concrete infill.



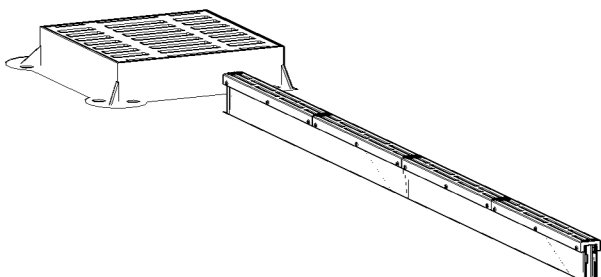
● Pouring Concrete

Concrete should be poured in two stages, the first to bed the feet to anchor the channel into the trench. The second pour will be to either finished surface level or as a base for block paving or asphalt where required.

It is important to follow the installation drawings provided by Swarm in order to achieve the desired load rating for the finished product and in some cases - especially where larger channels are used, additional reinforcement may be required to reach higher load ratings.

Contact us for installation drawings or more information regarding additional reinforcement requirements.

You must refer to our full technical brochure and installation drawings for information on expansion and contraction materials, as well as crack inducers and reinforcement where required.



When Swarm Aqua® channels are ready to accept their surface finish - Concrete, Paving or Asphalt, they should be protected from damage as any impact on the channel before the finish material is set can result in reduced performance or loading capability.

● Transition Pieces

Swarm Aqua® channels come complete with male and female ends for a quick and simple installation. The collars are designed to socket onto the next channel whilst the castellations fit inside the following unit. These castellations can be tweaked with a pair of pliers if they are too tight, though usually they can be manually pinched to fit.

When using transition pieces, the collar will need to be removed from one of the sections as shown below. This can be achieved by removing the three rivet heads that hold the collar in place. We have found a 5mm drill bit is suitable for this task. The tabs on the transition piece can then be bent to fit around the channel parts to keep it in place. You may also use tape to secure the transition piece though it is not usually necessary.



● Installing Swarm Aqua® in Asphalt

When Swarm Aqua® channels are to be installed with an asphalt surface finish, it is important that the system has a full concrete surround all the way up to the base of the ductile iron top so that the steel walls are supported properly.

Once the concrete has set to this level leaving the iron section of the channel exposed, it is then possible to lay an asphalt wearing course to finished surface level, with a slight fall towards the Swarm Aqua® channel to aid in drainage.

When rolling asphalt close to the Swarm Aqua® channel, care must be taken not to roll over the system and to ensure the channels aren't moved or damaged in the installation process.



● Installing Swarm Aqua® in Block Paving

It is possible to install both Swarm Aqua® channels with a cast top, and the Swarm Aqua® paving system within block paving depending on the surface aesthetic required.

Installing Swarm Aqua® Cast in Block Paving

Shown right, this application is installed in a similar way to Swarm Aqua® in asphalt situations. The concrete surround should be brought up as high as possible along the Swarm Aqua® system, though this is always above the twinwall pipe section. This then allows for a bedding course beneath the surface paving.

It is important to ensure that the first row of blocks is permanently affixed with a polymer modified mortar to ensure expansion and movement are accounted for. In all cases the paving level should be slightly above the Swarm Aqua® system to aid drainage.

Installing Swarm Aqua® Paving in Block Paving

Swarm Aqua® Paving is the system designed specifically for use in paved surface finishes and offers a more discrete drainage system. The installation method is the same as the Swarm Aqua® Cast system.

The Swarm Aqua® Paving system is usually used with recessed steel covers, to match the discrete aesthetic which are also installed as per the box installation details available online.

