Technical Information

MEADRAIN® Linear Drainage Hydraulic calculations

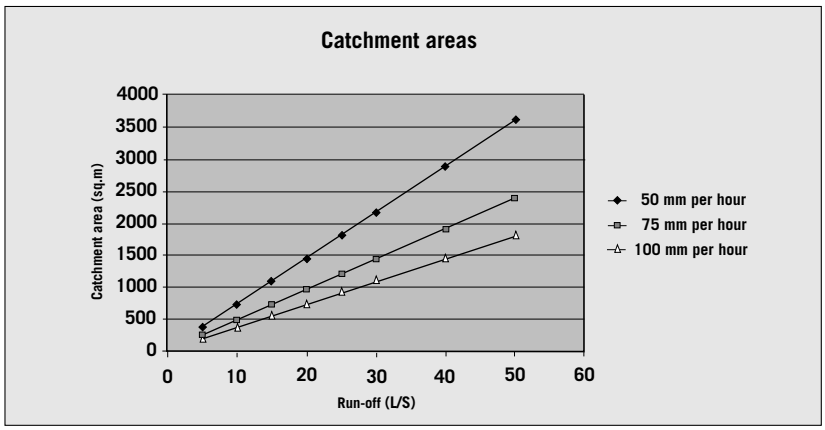
When drawing up an individual design based on the given requirements, MEA drains solutions provide quick, reliable and economical drainage of surface water. Whether in the public, industrial or private sector, linear drainage is the optimal solution as water can drain into the installed channel along the entire length.

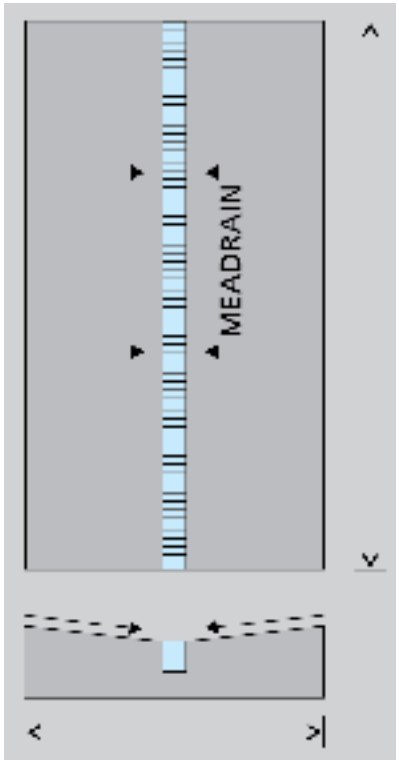
Several factors are important if accurate calculations are to be made: the size and surface features of the site to be drained must be taken into account, along with the average amount of water deposited in this area.

The Institute of Water Technology at the University of Stuttgart performs detailed hydraulic calculations for MEADRAIN drainage channels. Using experimental investigations and empirically corrected calculation formulae, the performance of different channel systems is assessed. The length and fall of the line as well as the geometrical shape of the individual channel units are taken into account in these calculations.

By taking all the above factors into consideration, the type and length of the required channel line and the number of collection points needed in practice can then be specified in the form of tables and diagrams.

Hydro International offers a full free of charge technical design service providing hydraulic calculations, CAD layout drawings, quantity schedules and product specifications.





To calculate the site's hydraulic requirements, the following steps should be followed:

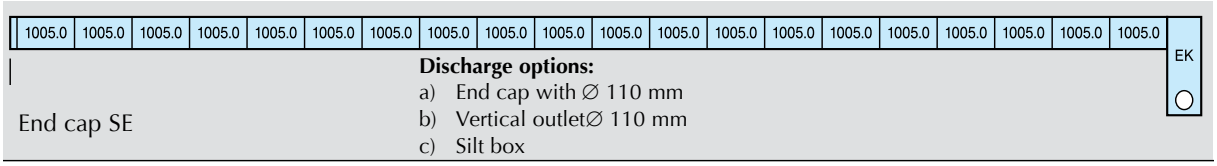
1) Multiply the catchment length by the catchment width to give the surface area to be drained by the channels.
2) Multiply the catchment area by the chosen rainfall intensity (80 mm per hour being the most commonly used). The calculated figure is the litres per hour that the channel must cope with.
3) Divide by 3600 to calculate the site requirements in litres per second.
4) Divide by the channel length (in metres) to give the flow rate (litres per second per metre).
5) Cross-reference flow rate with MEA's hydraulic data to determine channel required.
6) Check the outlet has sufficient discharge capacity to deal with the requirements.

Technical Information

MEADRAIN® 1000 Channel Run Information

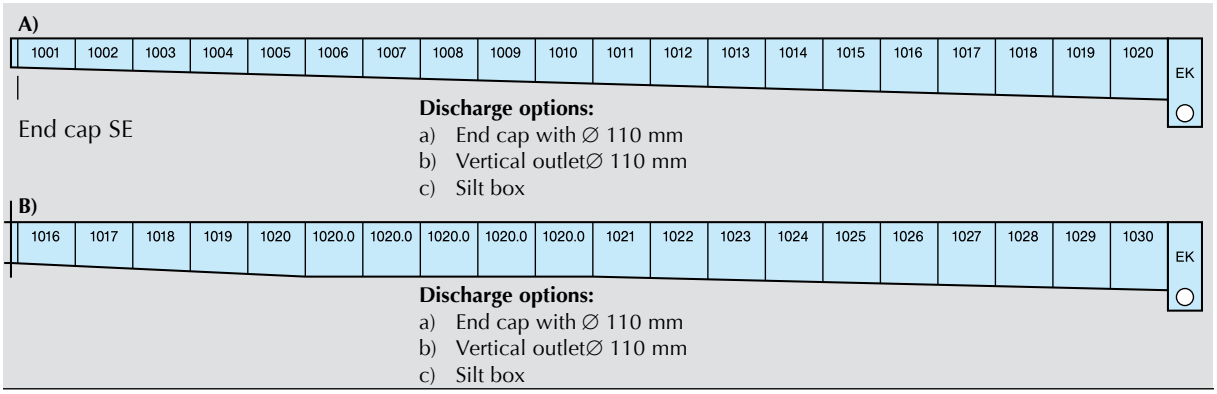
1) Channel without fall

The flat channel is installed if no fall is required, or the natural gradient is adequate. The channels are available in six different heights.



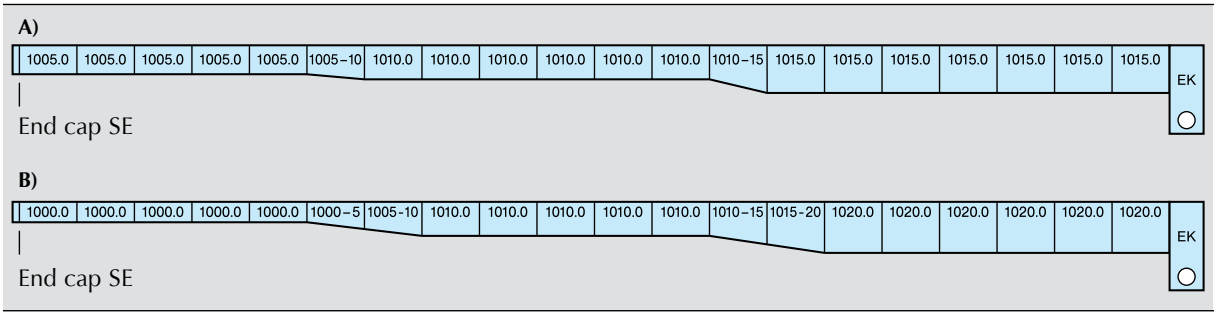
2) Channel with built-in fall

This channel type is available in designs 1001-1030. If the line is to be extended, level invert sections can be inserted.



3) Channel with stepped fall

To achieve this type of fall, channel sections with up to five heights can be combined.



4) Channel with counter-directional fall

This method of construction is particularly suited to the formation of long channel runs.