



ACO QuAD-VFC

Vortex Flow Control Design Software – Quick Guide

- Log in/ register on the QuAD-VFC start page <https://www.aco.co.uk/vortex-flow-calculator>
- Once logged in, the software opens at the main screen (see below), populated with the project and chamber that was last worked on. If a project has not yet been created, the screen will populate with default data.
- You can use Project Manager (on LHS) to:
 - Create a New project (Note: each of your projects must have a unique name)
 - Add a New Chamber - up to 99 chambers (Note: each chamber will have a different **number** but can have a non-identical chamber **name**)
 - Select Project and Chamber: 'current' project and chamber being worked on is shown in top bar.
 - Edit name of a project or chamber
 - Delete a project or chamber
 - Search for a previous project - any sequence of characters (letters and numbers) can be typed into the search box. Pressing the enter button will return all projects that contain that sequence of characters in any part of the project name. (You can also search by the Design Identification Number, if known.)
- Select Q-Brake (Vortex Flow Control) or Q-Plate (Orifice Plate)

- Enter your design head and flow rate
 - Head < 3m, flow rate between 2 l/s and 99 l/s
- Select the back plate type you want: Flat / Curved / PN16 (Q-Brake only)
- Select your outlet pipe diameter (if known)
- Enter your chamber details – type of material and diameter (if known). Note that the diameters shown in the drop down box are standard diameters and there are some differences between concrete and plastic.
- For Q-Plate, you have the option of Standard or Drain Down (size dependent)

- Your results are shown at top right
 - Q-Brake: Orifice diameter; outlet spigot OD; Flush Flow and Reattachment height; Model Number
 - Q-Plate: Orifice diameter, Plate width, outlet spigot OD (Curved back Drain Down only); Model Number

- Head vs Flow Rate:
 - Graphical representation on screen
 - Detailed Head vs Flow Rate data can be exported in various formats via SHOW HEAD/FLOW DATA button

- OUTPUT button opens a detailed pdf

- DESIGN REVIEW button allows you to send a link to a third party, or parties, to view your design. They do not have to be registered on the software to view the design. *Note: some spam filters may put the email in the recipient's junk folder.*
 - When the recipient clicks on the link, they will be taken to a facsimile view of your design. The facsimile view is 'dumb' - there is no calculation carried out in the view. It is non-editable - only you can change any of the parameters of your design - and has no functionality to output the data points or the summary pdf – only you control the outputs you want. The third party cannot see any of your projects – only you can access them.

QuAD-VFC Q-Brake Screen

Head <3m
Flow rate 2 to 99 //s

The screenshot shows the QuAD-VFC Vortex Flow Calculator interface. The top navigation bar includes the logo, user name (DAVID SMOKER), and language (English). The main content area is divided into several sections:

- Project Management:** Located on the left, it includes a 'Sort By' dropdown (Most Recent First), an 'Enter Name' field, and a list of projects with '+ New Project' and 'Delete' icons.
- Head and Flow Rate:** A central input section with 'Type' (Q-Brake selected), 'Head' (2.000 m), and 'Flowrate' (5.000 l/s).
- CHAMBER INFORMATION:** Includes 'Backplate Type' (Flat selected), 'Outlet Pipe Size DN/ID (mm)' (Selected: 100), 'Chamber Material' (Concrete selected), 'Chamber Diameter (mm)' (Selected: 1800), and 'Minimum Sump' (365mm).
- GRAPH DISPLAY OUTPUT:** A line graph showing Head (m) on the y-axis (0 to 2.2) and Flowrate (l/s) on the x-axis (0 to 5). The curve shows a peak at approximately 3.5 l/s.
- RESULTS:** Displays 'Orifice Diameter' (90mm / 95mm), 'Flush Flow Height' (305mm / 695mm), and 'Model: QB425'. A warning states 'Warning: Orifice size is less than 100 mm'.
- PRODUCT:** Shows a 3D rendering of the Q-Brake device.

Annotations and callouts include:

- 'Current active design' pointing to the top header.
- 'Calculated results' pointing to the Results section.
- 'Q-Brake Model Number' pointing to 'Model: QB425'.
- 'Generic picture' pointing to the 3D product image.
- 'Picture will change to back plate selected' pointing to the product image.
- 'Export Head/Flow Data' pointing to the 'SHOW FLOW/HEAD DATA' button.
- 'Generate pdf Output' pointing to the 'OUTPUT' button.
- 'Generate link to non-editable view of design' pointing to the 'DESIGN REVIEW' button.
- 'Different chamber diameters available for concrete and plastic' pointing to the Chamber Material selection.
- 'Measured from the invert of the outlet pipe' pointing to the Outlet Pipe Size input.
- 'Backplate selection' pointing to the Backplate Type options.
- 'Outlet Pipe (min and selected)' pointing to the Outlet Pipe Size input.
- 'Chamber Material' pointing to the Chamber Material selection.
- 'Chamber Dia. (min and selected)' pointing to the Chamber Diameter input.
- 'Minimum sump' pointing to the Minimum Sump input.
- 'Edit/delete projects' pointing to the project list.

QuAD-VFC Q-Plate Screen

The screenshot shows the QuAD-VFC Vortex Flow Calculator interface. It is divided into several sections:

- Project Management:** Located on the left, it includes a 'Sort By' dropdown (set to 'Most Recent First'), an 'Enter Name' field, and a 'CREATE NEW PROJECT' button. Below this is a list of projects, with 'New Project 2' selected and options to edit or delete it.
- Head and Flow Rate:** A callout box points to the 'HEAD FLOW RATE INPUT' section, which contains:
 - Type: Radio buttons for 'Q-Box' and 'Q-Plate' (selected).
 - Head: Input field with '2.000' and unit 'm'.
 - Flowrate: Input field with '5.000' and unit 'l/s'.
- Current active design:** A callout box points to the 'CHAMBER INFORMATION' section, which includes:
 - Backplate Type: Radio buttons for 'Flat' and 'Curved' (selected).
 - Outlet Pipe Size DN/ID (mm): Input field with '150' and a warning icon.
 - Chamber Material: Radio buttons for 'Concrete' (selected) and 'Plastic'.
 - Chamber Diameter (mm): Input field with '1800'.
 - Minimum Sump: '300mm'.
 - Product Specified: A dropdown menu with options 'Q-Plate Drain Down', 'Q-Plate Drain Down', and 'Q-Plate Standard'.
- Graph Display Output:** A central graph showing 'Head(m)' on the y-axis (0 to 2.2) and 'Flowrate (l/s)' on the x-axis (0 to 5). A blue curve represents the relationship between head and flow rate.
- Calculated results:** A callout box points to the 'RESULTS' section, which displays:
 - Plate Width: '345mm'
 - Outlet Spigot OD: '145mm'
 - Model: 'QPD150'
- Generic picture:** A callout box points to the 'PRODUCT' section, which shows a 3D rendering of the Q-Plate device.
- Export Head/Flow Data:** A callout box points to the 'SHOW FLOW/HEAD DATA' button.
- Generate pdf Output:** A callout box points to the 'OUTPUT' button.
- Generate link to non-editable view of design:** A callout box points to the 'DESIGN REVIEW' button.

Additional callouts provide specific details:

- 'No restriction on head or flow rate' points to the input fields.
- 'Backplate selection' points to the 'Backplate Type' radio buttons.
- 'Outlet Pipe (min and selected)' points to the 'Outlet Pipe Size' field.
- 'Chamber Material' points to the 'Chamber Material' radio buttons.
- 'Chamber Dia. (min and selected)' points to the 'Chamber Diameter' field.
- 'Minimum sump' points to the 'Minimum Sump' field.
- 'Standard/Drain Down' points to the 'Product Specified' dropdown.
- 'Different chamber diameters available for concrete and plastic' points to the 'Chamber Material' radio buttons.
- 'Measured from the invert of the outlet pipe' points to the 'Outlet Pipe Size' field.
- 'Picture will change to back plate selected' points to the 'PRODUCT' section.