Technical Porfolio

By Toby Osmond

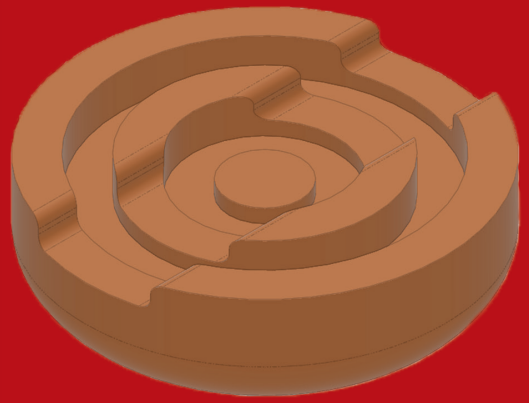
Jack Pad for Halfords Car Jack

As standard, a halfords car jack does not come with the rubber component to help the jack grip the bottom of the vehicle. The current design also puts undue pressure on the contact points. This is my solution, made from a high thickness polyurethane. This helps spread the load while maintaining the durability typically associated with a rubber jack pad.

I've also included a mould design. Using my experience of casting polyurethane at Powerflex, I designed in accomodation for shrinkage, incorporated ease of extraction into the mould design, and created a product that will be easily mass produced.

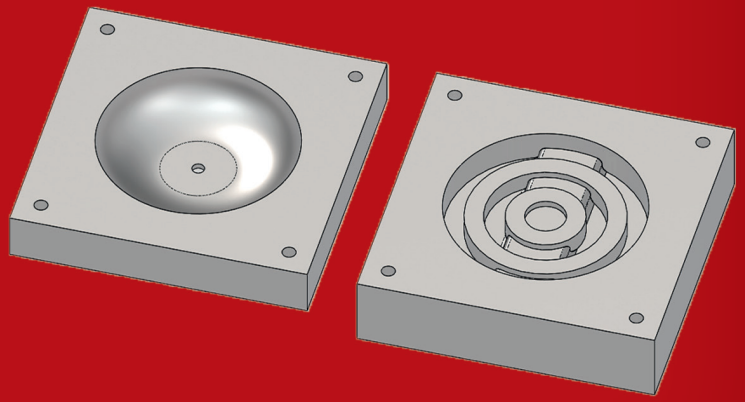
The Design

As with any design, it is important to define the immutable criteria the design must meet. For this project, it is simple; It must fit the Halfords Car Jack, and it must take the weight of the car. For the former of this, I measured the cradle for the car jack and shaped the base of the pad to suit.

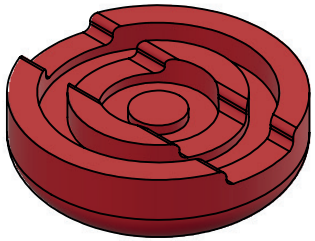


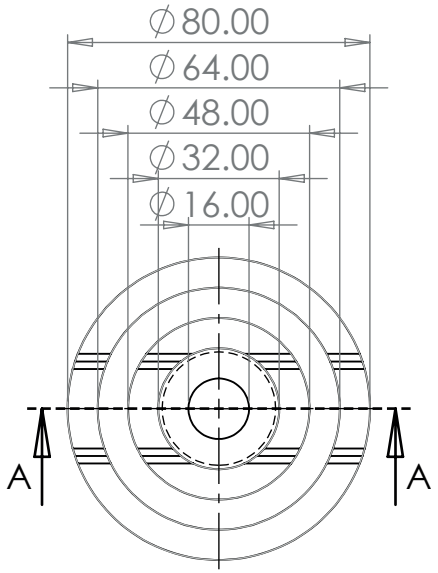
For the second criteria, I considered several factors. Firstly, the weight of a car. Most cars weigh under 2 tons, however, very few exceed 3 tons. The cars that do are often classics and not in production. Therefore, using 3 tons as the maximum capacity will serve the vast majority of purposes, especially since it is unlikely that the entirety of the car weight would be resting on the jack. After due research, I determined that Shore 95A Polyurethane would suit this purpose and comes with added benefit of having different colours. This allows the colour of the pad to be adapted to Halfords branding.

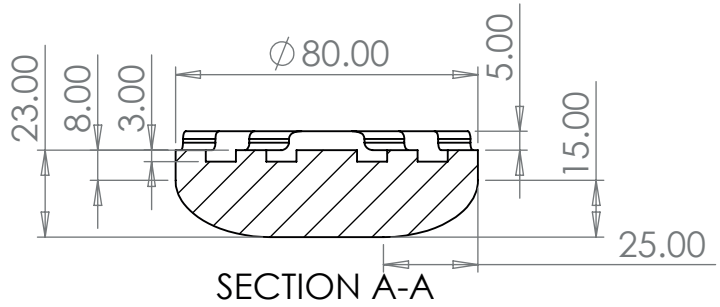
Finally, I considered the top surface. Most of the time, when jacking a car up, people place the jack pad under a pinch weld. Alternatively, they place it in pre defined mounting points. It is impossible to make it suit all of these, therefore I've designed it to suit the pinch weld, with the view that the shape is universal enough to be used on designated jacking points. I've also designed in some voids to allow for the material to deform under the pressure. These are designed to be small enough not weaken the design, but to allow for some elastic deformation which will spread the load.



I've also taken into consideration that polyurethane is vulnerable to cutting, and made the sections around the cutting thick enough to negate any pressure cutting the product. Furthemore, I've designed a lower section to suit a pinch weld. This still allows for demormation, while ensuring the pressure is distributed evenly.







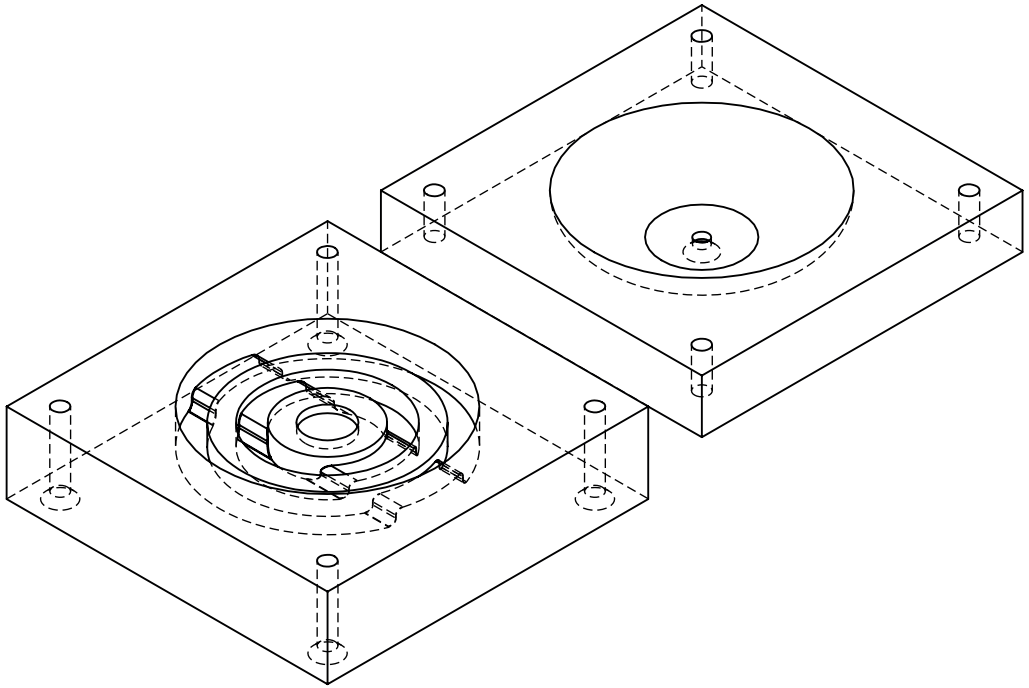
SECTION A-A

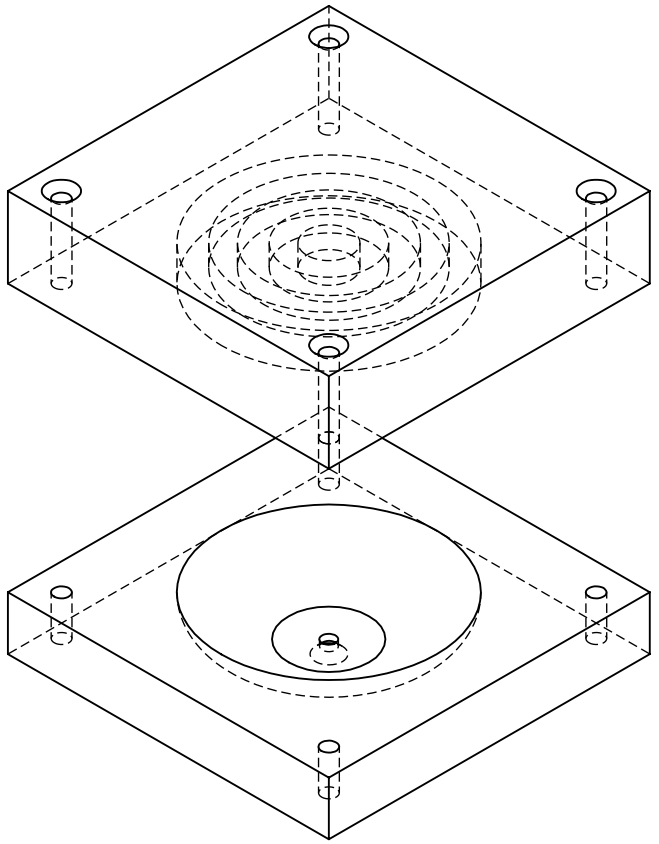
Halfords Jack Pad

27/01/2026

Tolerence:	±1mm	Scale:	1:2
Units:	mm	Author:	T.Osmond

Notes:
1. All dimensions as per finished size.
2. 0.2mm Added to Mould to allow for Shrinkage.
3. Shore 95A Polyurethane.
4. Mould Made from T3-1086 Aluminium.
5. Remove all burrs and sharp edges.



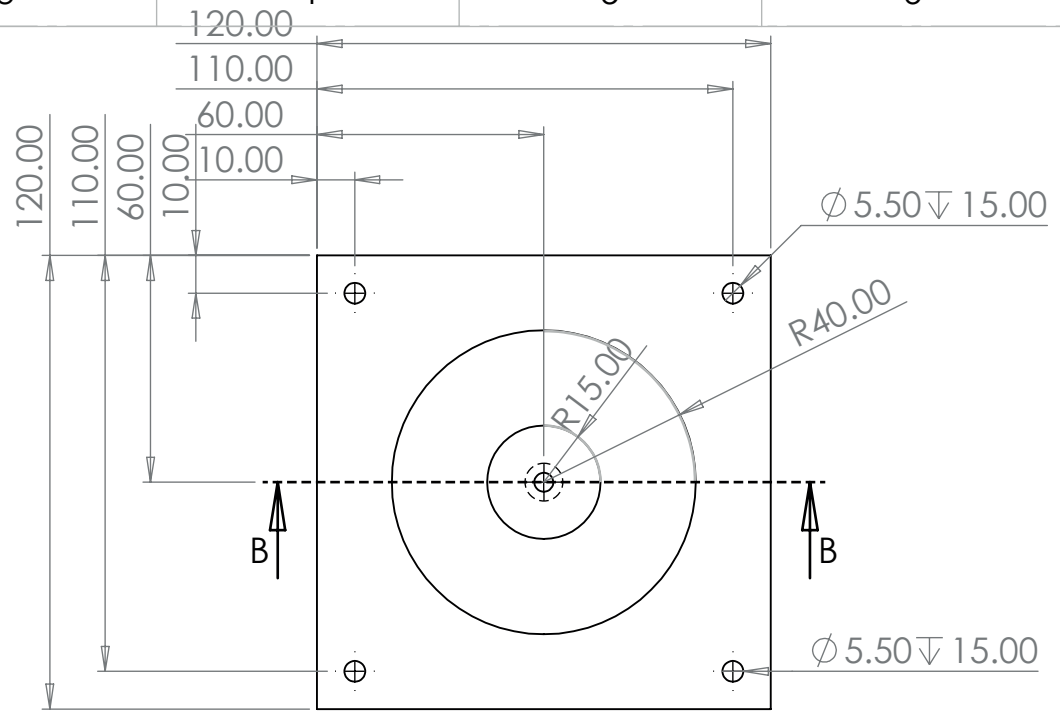


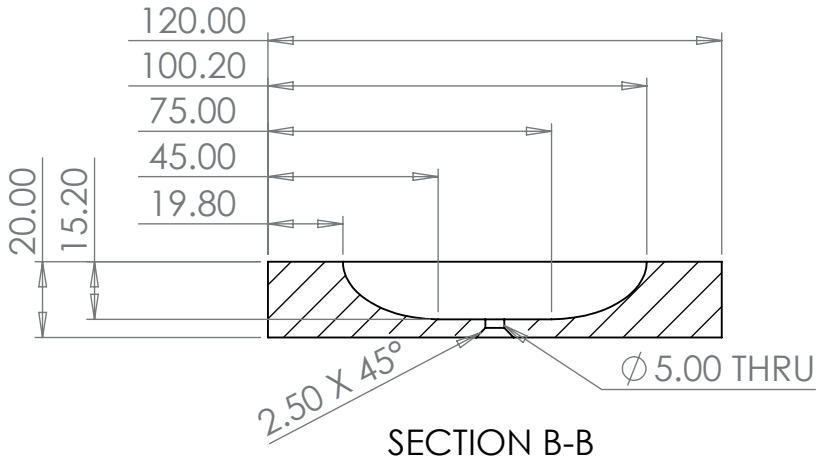
Halfords Jack Pad

27/01/2026

Tolerence:	±0.2mm	Scale:	1:2
Units:	mm	Author:	T.Osmond

Notes:
1. All dimensions as per finished size.
2. 0.2mm Added to Mould to allow for Shrinkage.
3. Shore 95A Polyurethane.
4. Mould Made from T3-1086 Aluminium.
5. Remove all burrs and sharp edges.

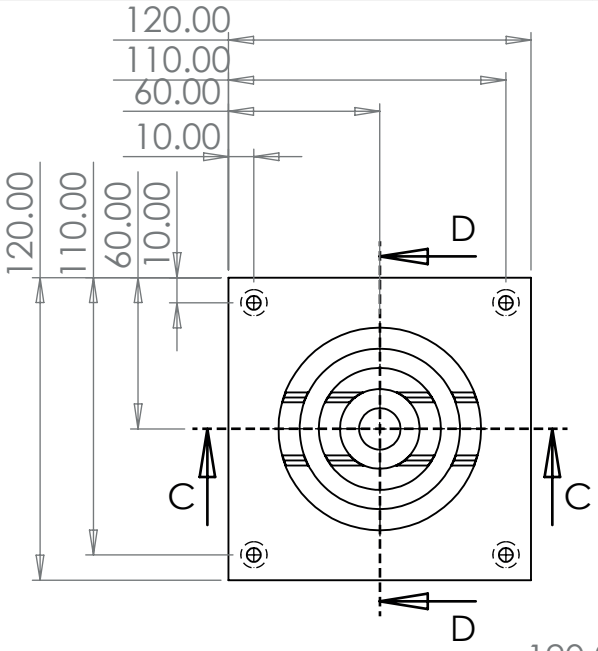


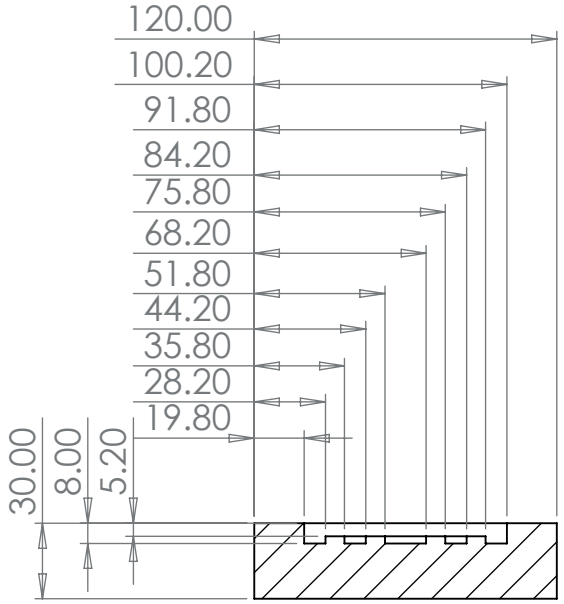


SECTION B-B

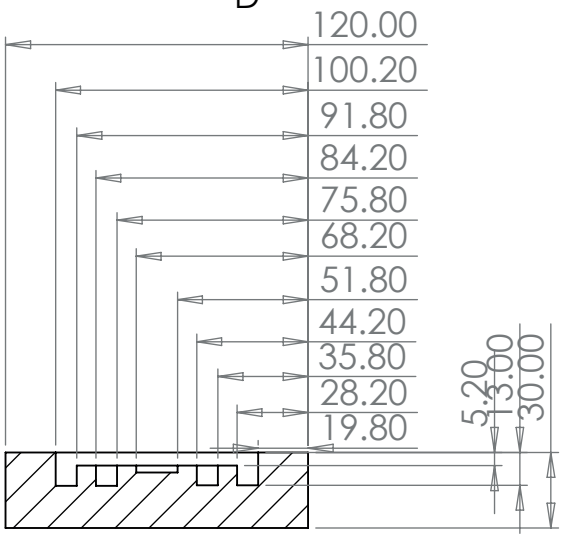
Halfords Jack Pad			27/01/2026
Tolerence:	±1mm	Scale:	1:2
Units:	mm	Author:	T.Osmond

Notes:
1. All dimensions as per finished size.
2. 0.2mm Added to Mould to allow for Shrinkage.
3. Shore 95A Polyurethane.
4. Mould Made from T3-1086 Aluminium.
5. Remove all burrs and sharp edges.





SECTION C-C



SECTION D-D

Halfords Jack Pad

27/01/2026

Tolerence:	±1mm	Scale:	1:3
Units:	mm	Author:	T.Osmond

Notes:
1. All dimensions as per finished size.
2. 0.2mm Added to Mould to allow for Shrinkage.
3. Shore 95A Polyurethane.
4. Mould Made from T3-1086 Aluminium.
5. Remove all burrs and sharp edges.

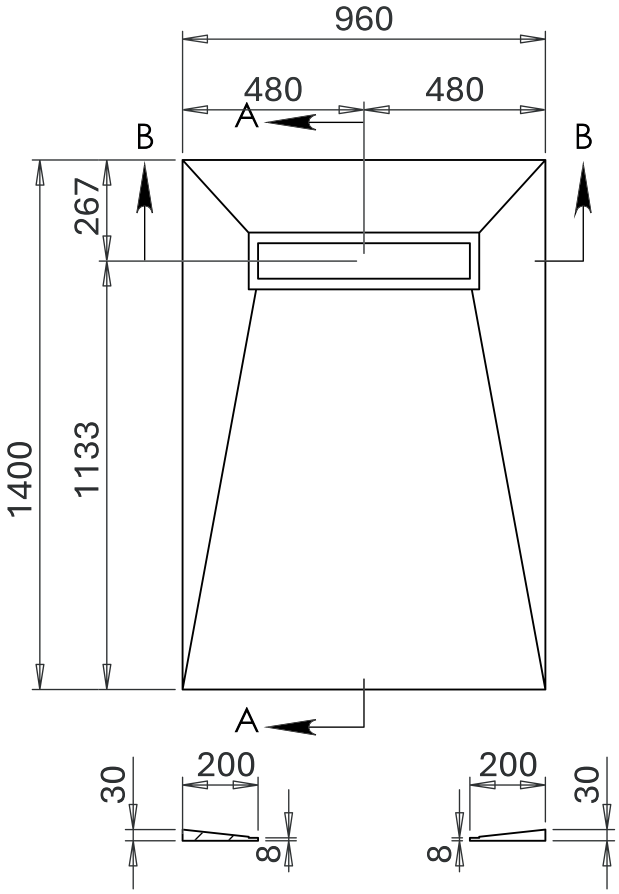
Tileable Shower Tray Drawing

As part of my work at Trimline group, I have designed a multitude bespoke tilable shower trays. These are often bespoke and created to suit a client's needs. This drawing is an example of what would be sent to a client to ensure that we are producing a tray to the correct specification. Each is designed to suit one of the stock trays, such as the channel E-Drain. The drawing template is one I developed in conjunction with the manufacturing department to ensure it is easy to read for both them, and the client.

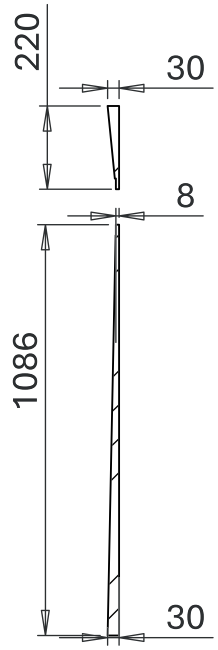
To aid in efficiency, I have designed macros that take this from a manual process that takes a few minutes to a automated process that takes a few seconds. This also builds in checks via the macro and sensors in a template model that make sure that the tray is not too shallow, and has the correct offset. Not only does this increase efficiency, but it reduces errors by eliminating repetitive tasks.

Dukkaboard BESPOKE

Quad Gradient Tray

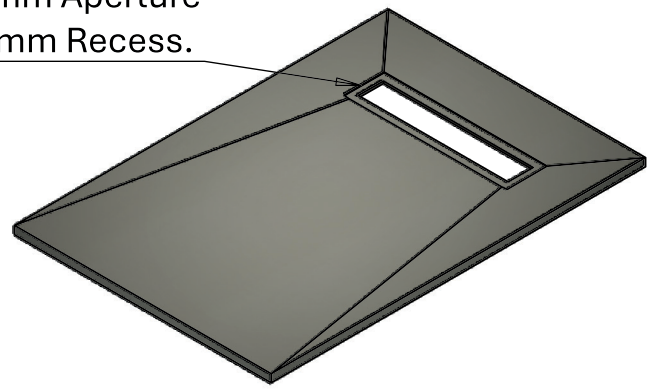


SECTION B-B



SECTION A-A

560 x 94mm Aperture
610x150mm Recess.



Notes:

- All dimensions in mm unless specified
- Material: Cement Coated Dukkaboard XPS foam.
- Tiling not included.
- Preformed flange not included.
- Aperture to fit 600 E-Drain
- Flat Recess to suit 600 E-Drain

DBX034677 - Bespoke Tray Former - 1400x960x30mm - 4 Gradient - E-Drain 600			05/01/2026
Tolerence:	±1mm	Scale:	1:20
Units:	mm	Author:	T.Osmond

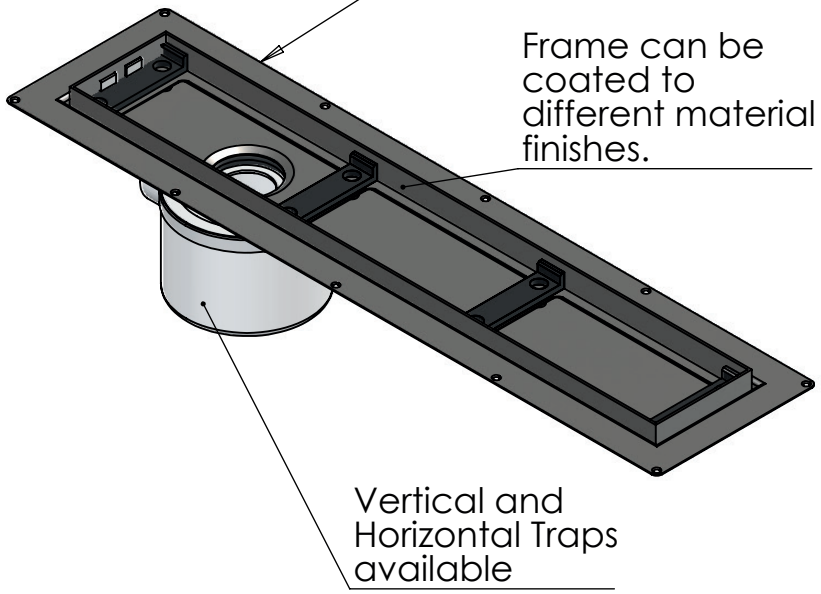
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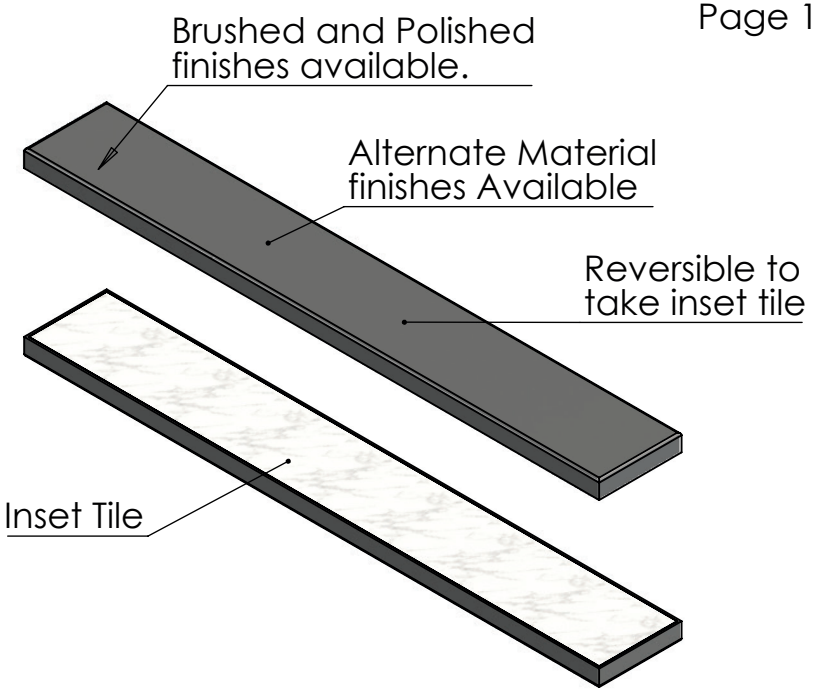
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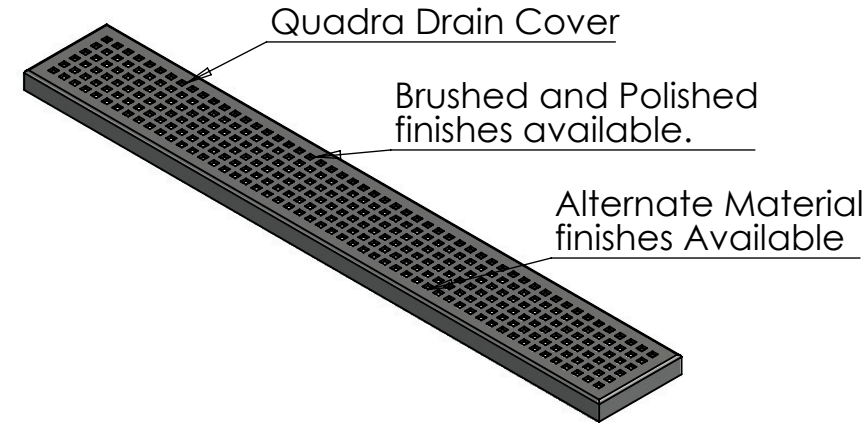
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Channel E-Drain Drawing

Shown here is a technical drawing for the standard shower drain to fit into a bespoke tray, as shown before. The purpose of this drawing, rather than for manufacture, is for the client to know what they are ordering and to ensure it suits their needs. It includes critical dimensions, including the overall height (with and without the water trap), the flow rate and the flange sizes. I've presented this information over several pages to keep it clear and concise, with each page having a clear function and set of information to covey.







Notes:
1. All dimensions as per finished size.
2. Flow Rate: 36LPM.
3. Multiple Lengths Available.
4. Multiple Covers Available
5. Adjustable Frame Height.
6. Suits up to 10mm Tile.
7. 50mm Water Seal.

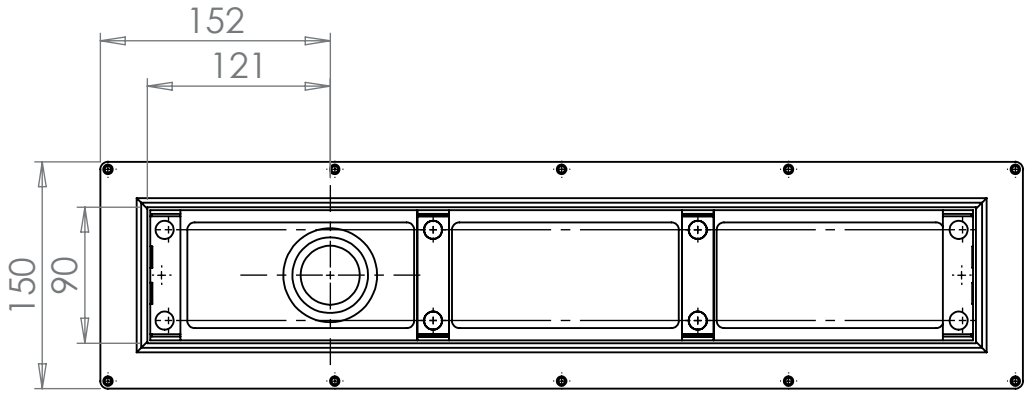
CAD-DCED-26A1			08/01/2026
Tolerence:	±1mm	Scale:	1:5
Units:	mm	Author:	T.Osmond

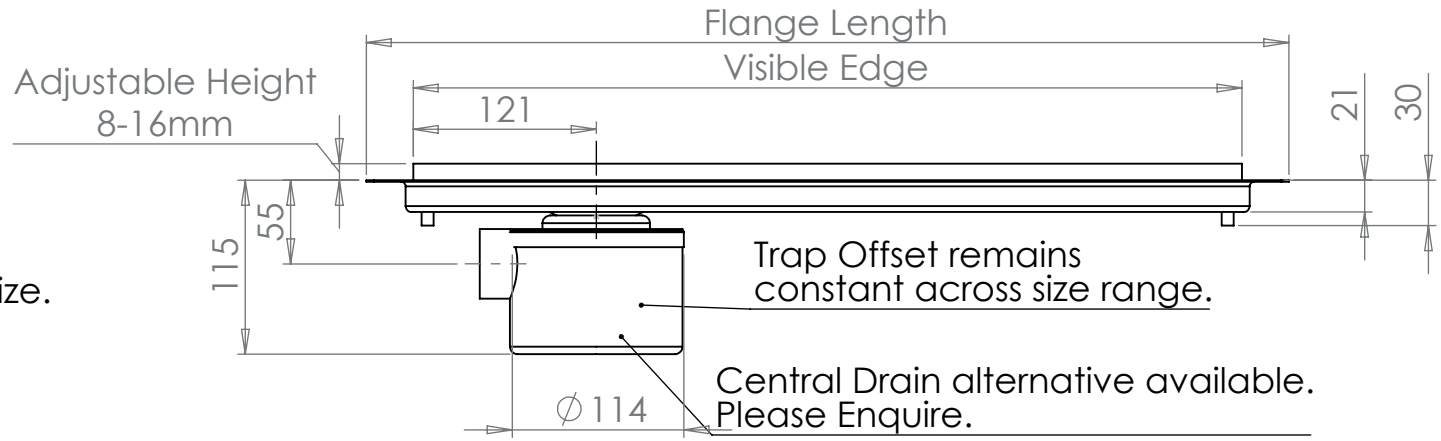
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Sizes (mm)		
Nominal Size	Flange Length	Visible Edge
600	610	550
700	710	650
800	810	750
900	910	850
1000	1010	950
1200	1210	1150





Notes:
1. All dimensions as per finished size.
2. Flow Rate: 36LPM.
3. Multiple Lengths Available.
4. Multiple Covers Available
5. Adjustable Frame Height.
6. Suits up to 10mm Tile.
7. 50mm Water Seal.

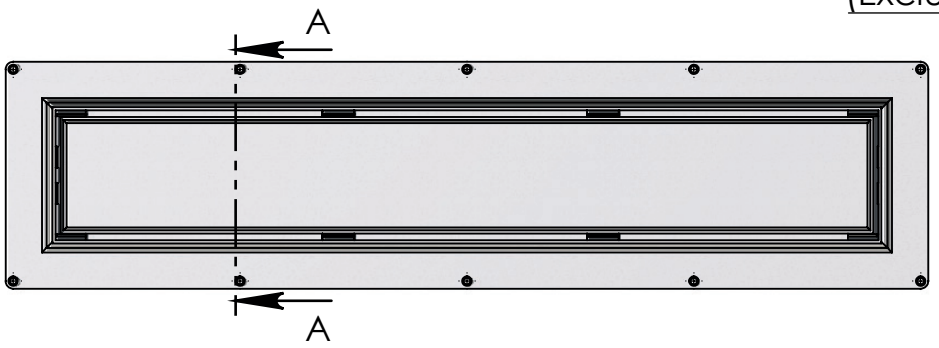
CAD-DCED-26A1			08/01/2026
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Units:	mm	Author:	T.Osmond

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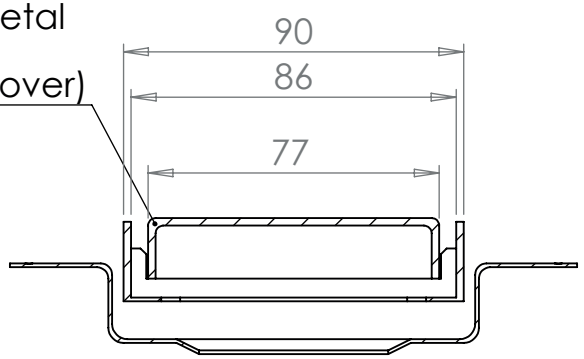
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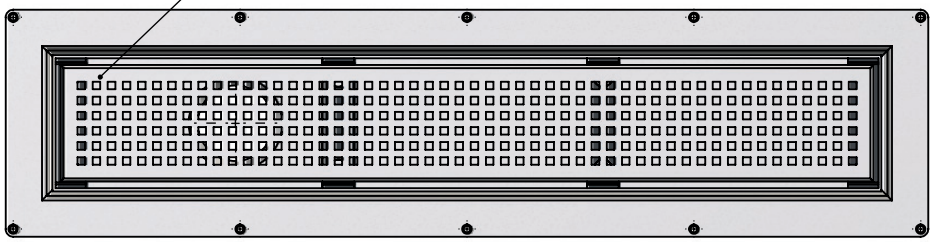
Reversible Drain Cover



Reversable tile for metal effect finish.
(Excludes Quadra Cover)

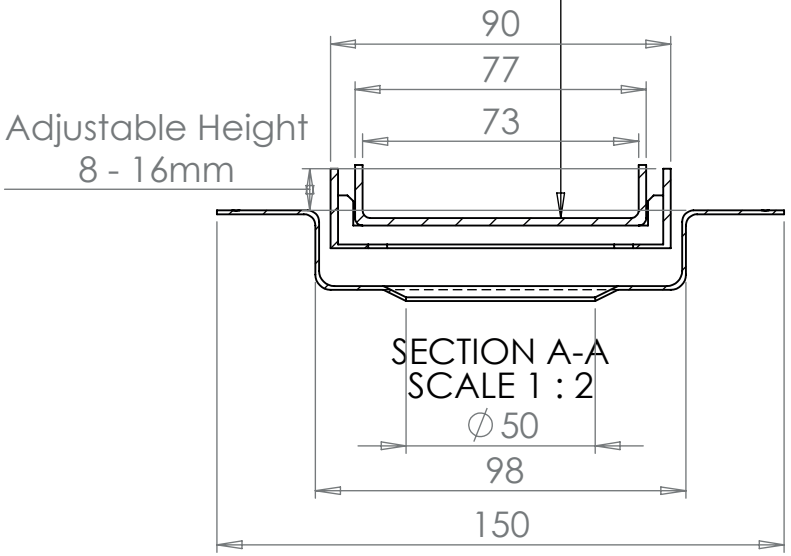


Quadra Drain Cover



Suits Tile up to 10mm Thick.
(Excludes Quadra Cover)

Adjustable Height
8 - 16mm



Notes:
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2. Flow Rate: 36LPM.
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4. Multiple Covers Available
5. Adjustable Frame Height.
6. Suits up to 10mm Tile.
7. 50mm Water Seal.

CAD-DCED-26A1			08/01/2026
Tolerence:	±1mm	Scale:	1:5
Units:	mm	Author:	T.Osmond

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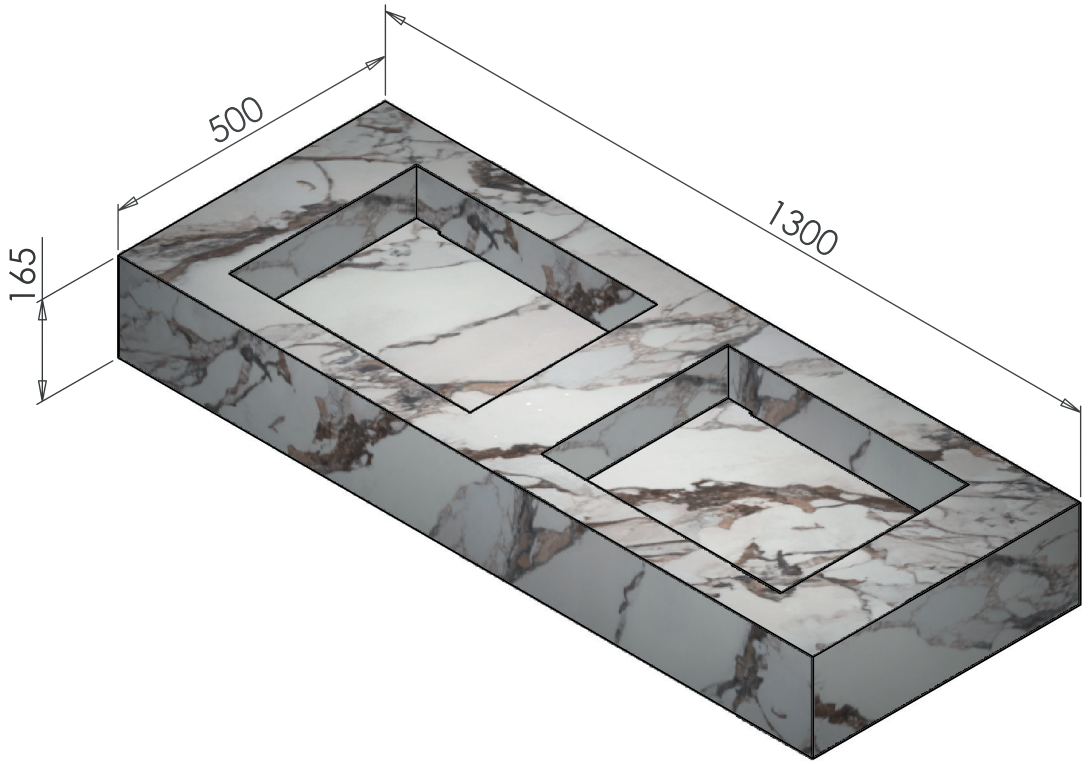
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Porcelain Tiled Basin

In the following, the base and final unit of a porcelain tiled basin, made for Trimline Group, are shown. The process uses a cement and mesh coated XPS Foam, a signature of the Dukkaboard Brand. The unit is then clad in porcelain, using mitred joints, tile adhesive and resin to ensure a beautiful finished product. These units are made bespoke, and using a client specified tile, this style of drawing is used to get client approval. It ensures the client is happy and that the important details are set in stone. Mitre joints and adhesive are not shown, as these are unnecessary for the client, and complicate the drawing. Internal corners do not require a mitre as it cannot be seen, however external ones do, since otherwise the internal body of the tile can be seen. Tile adhesive is applied at the discretion of the tiler.

PYRO + ECHO EnVision

Mercer Style Vanity



Notes:
- All dimensions as per finished size.
- 3x Cantilever Brackets.
- No tap slot included.
- Polished Calacatta Viola Tile - T3366.
- No underside tiling.

ENX080576 - 1300x500x165 Double Mercer

27/11/2025

Tolerence:	±1mm	Scale:	1:10
Units:	mm	Author:	T.Osmond

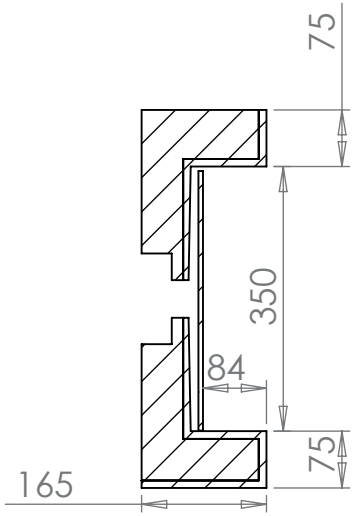
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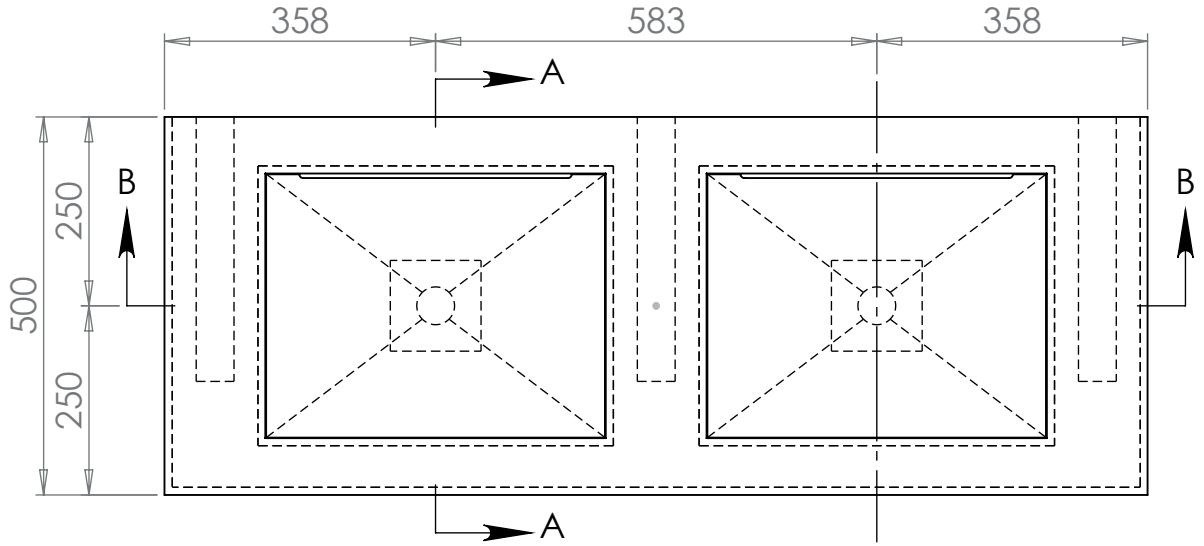
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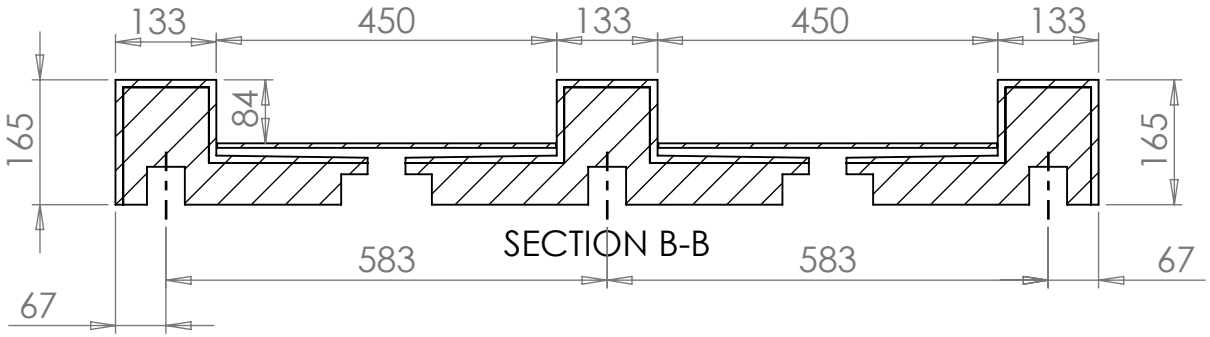
PYRO + ECHO | EnVision

Mercer Style Vanity



SECTION A-A





SECTION B-B

Notes:
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- 3x Cantilever Brackets.
- No tap slot included.
- Polished Calacatta Viola Tile - T3366.
- No underside tiling.

ENX080576 - 1300x500x165 Double Mercer

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Tolerence:	±1mm	Scale:	1:10
Units:	mm	Author:	T.Osmond

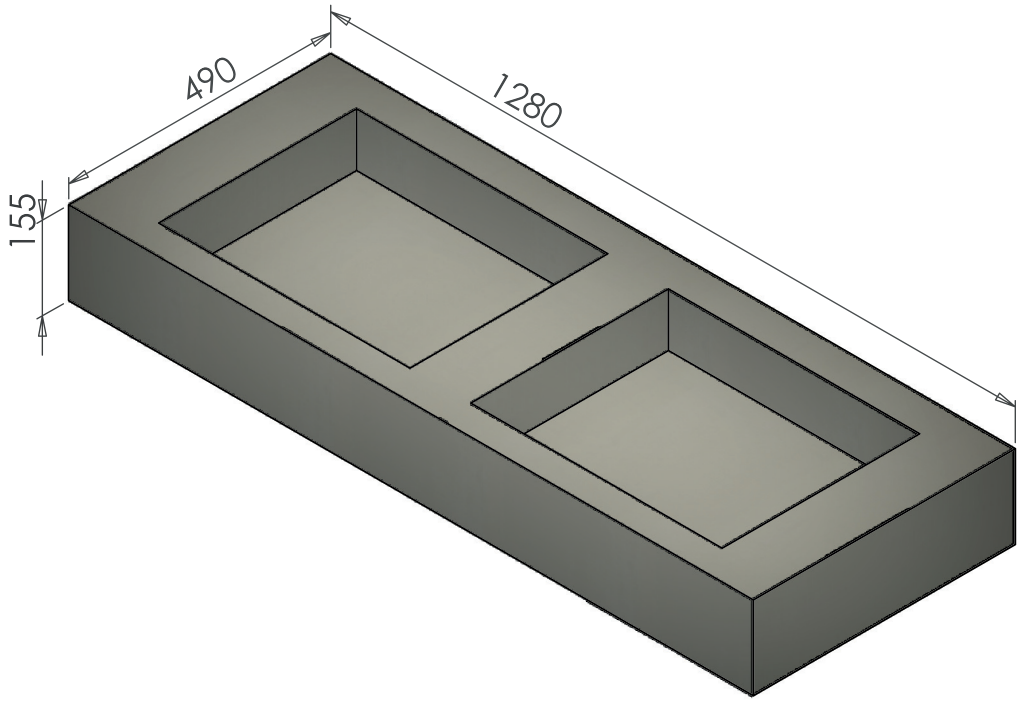
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Dukkaboard BESPOKE

Mercer Style Vanity



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ENX080576 - 1300x500x165 Double Mercer			27/11/2025
Tolerence:	±1mm	Scale:	1:10
Units:	mm	Author:	T.Osmond

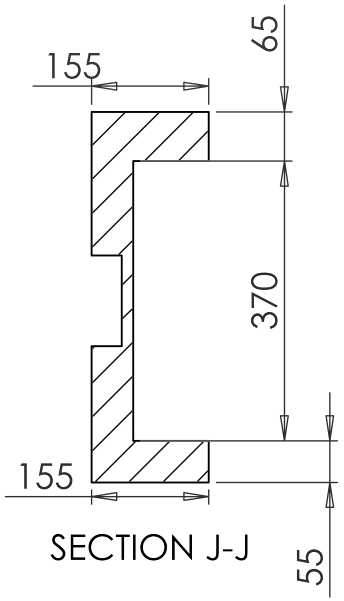
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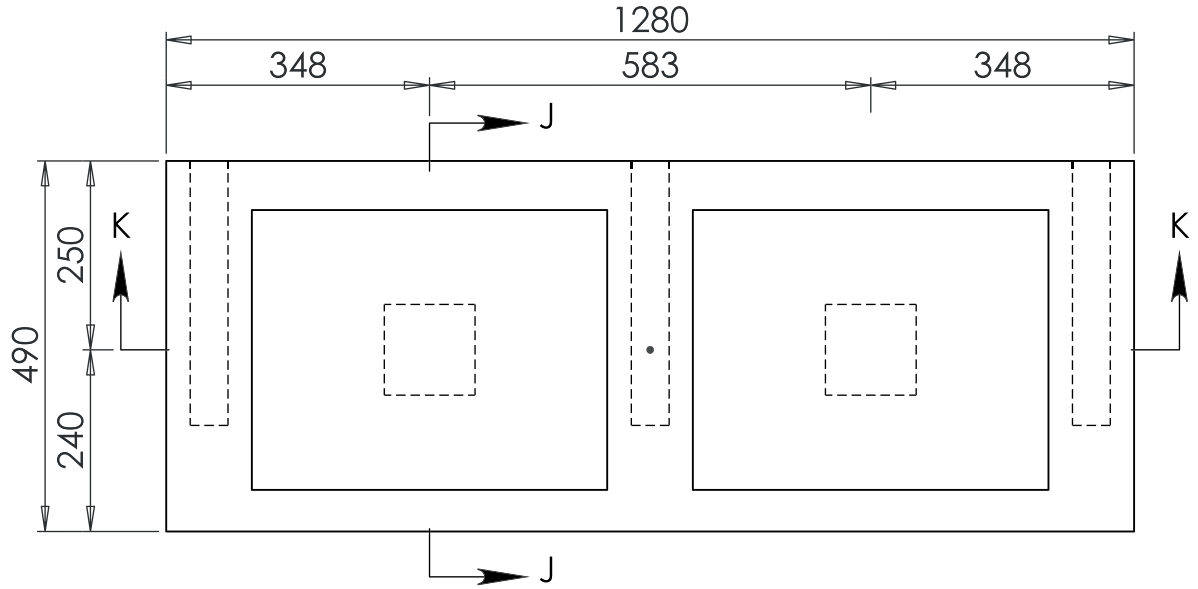
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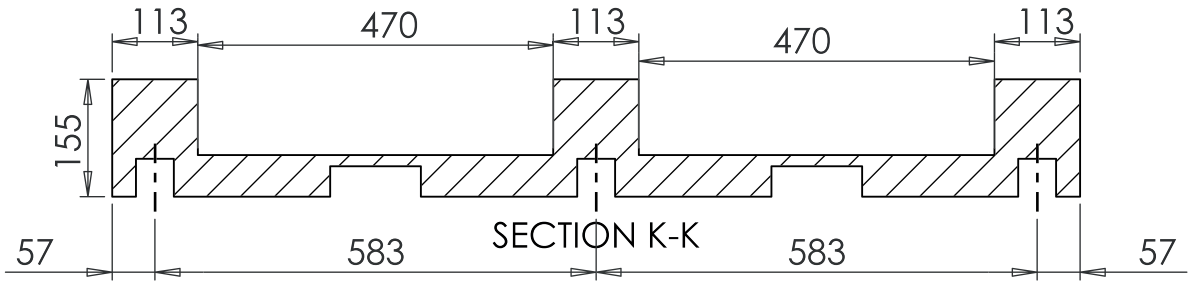
Dukkaboard BESPOKE

Mercer Style Vanity



SECTION J-J





SECTION K-K

Notes:
- All dimensions as per finished size.
- 3x Cantilever Brackets.
- No tap slot included.
- Polished Calacatta Viola Tile - T3366.
- No underside tiling.

ENX080576 - 1300x500x165 Double Mercer

27/11/2025

Tolerence:	±1mm	Scale:	1:10
Units:	mm	Author:	T.Osmond

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