



RackCalc Help

Please refer to your project details for all applications.

We request project details and/or shop drawings prior to fabrication.

****PLEASE INCLUDE COMPLETE PART NUMBER WITH ORDER****

SHOP DRAWINGS FOR ALL PRODUCTS CAN BE FOUND ON OUR WEBSITE

Aluminum Box Type Racks (AB Series)

Width ID – Enter the width in inches of the inside of the trash rack. CONCRETE OPENING WIDTH + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Height ID – Enter the height in inches of the inside of the trash rack. This is the distance from the bottom to the top. CONCRETE OPENING HEIGHT + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Depth – Enter the depth in inches from the face of the concrete structure to the outside of the trash rack.

Bar Diameter – Enter the aluminum round bar diameter in inches. This should be found on your project details.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh – Enter "y" if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

Stainless Fasteners – Enter the quantity of 3/8 x 3 inch stainless steel concrete wedge anchors you require. Typically, they are spaced at a maximum of 18 inches apart. Calculate the perimeter of the rack and divide by 18. Round this number up. This will give you the recommended amount of fasteners.

Aluminum Wedge Type Racks (AW Series)

Width – Enter the width in inches of the trash rack. The width must be a minimum of 2 inches larger than the orifice plate beneath it. This prevents clearance issues with the orifice plate when mounting.

Height – Enter the height from the bottom to the top. This does not include the top hinge plate. The hinge plate adds approximately 3 inches to the height entered, so make sure you have room above. If requested, the hinge assembly can be eliminated.

Depth – Enter the depth in inches from the face of the concrete structure to the outside bottom of the trash rack. Typically, this is the area that rests on the low-flow channel.

Bar Diameter - Enter the aluminum round bar diameter in inches. This should be found on your project details.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh - Enter "y" if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

****Fasteners are included with this product****

Aluminum Rectangular Bar Grating Wedge Type Racks (RBW Series)

Width - Enter the width in inches of the outside of the trash rack. The width must be a minimum of 4 inches larger than the orifice plate beneath it. This prevents clearance issues with the orifice plate when mounting.

Height - the height from the bottom to the top. This does not include the top hinge plate. The hinge plate adds approximately 3 inches to the height entered, so make sure you have room above. If requested, the hinge assembly can be eliminated.

Depth – The depth must be the same as the height. This is to create a perfect 45-45-90 degree triangle. The maximum angle that can be cut with our shear is a 45 degree angle.

Grating Thickness – Enter the thickness of the rectangular bar grating. This is either 2 inches or 1.5 inches. Other sizes and material types are available upon request.

****Fasteners are included with this product****

Aluminum Orifice Plates (OP Series)

Width – Enter the width of the plate in inches.

Height – Enter the height of the plate in inches.

Thickness – Enter the thickness of the plate in inches. Available sizes are: 1/4, 3/8, and 1/2. Other thicknesses are available upon request.

Additional Orifice Holes – Enter additional holes (if applicable) in plate. Standard plates include one orifice hole. If your plate requires more than one orifice hole, enter the amount here.

Stainless Fasteners – Enter the quantity of 3/8 x 3 inch stainless steel concrete wedge anchors you require. Typically, they are spaced at a maximum of 18 inches apart. In most cases, one for each corner is acceptable as long as the distance is not much more than 18 inches apart.

Neoprene Gasket – Enter "y" if your orifice plate requires a gasket to seal the plate to the structure. The gasket is 1/8 inch thick x 1 inch wide neoprene rubber, glued to the back perimeter of the orifice plate.

Aluminum Blank Plates (ABP Series)

Typically used to block off temporary holes in structures. No orifice hole in plate.

Width – Enter the width of the plate in inches.

Height – Enter the height of the plate in inches.

Thickness – Enter the thickness of the plate in inches. Available sizes are: 1/4, 3/8, and 1/2. Other thicknesses are available upon request.

Stainless Fasteners – Enter the quantity of 3/8 x 3 inch stainless steel concrete wedge anchors you require. Typically, they are spaced at a maximum of 18 inches apart. In most cases, one for each corner is acceptable as long as the distance is not much more than 18 inches apart.

Neoprene Gasket – Enter "y" if your orifice plate requires a gasket to seal the plate to the structure. The gasket is 1/8 inch thick x 1 inch wide neoprene rubber, glued to the back perimeter of the orifice plate.

Aluminum Frame & Grate Assemblies (AFG Series)

Frames come with anchors welded to bottom for casting into concrete.

Frames are 1/4 x 2 1/2 x 2 1/2 inch aluminum angle.

All grating is trim-banded.

Width ID – Enter width of inside of concrete structure. This is also the inside dimension of the frame. We will add approximately 1/4 inch to this dimension to clear concrete forms.

Length ID – Enter length of inside of concrete structure. This is also the inside dimension of the frame. We will add approximately 1/4 inch to this dimension to clear concrete forms.

Grating Thickness – Enter the thickness of the rectangular bar grating. This is either 2 inches or 1.5 inches. Other sizes and material types are available upon request.

Hinges – Enter "y" if the grating requires hinges. This allows for a hatch-type entry into the structure. The grating is still removable if there are no hinges.

Lock Hasp – Enter "y" if a lock hasp is required. YOU MUST HAVE HINGES FOR this option.

Fasteners and Saddle Clips are included with this product

Aluminum Wing Wall Type Grating (AWWG Series)

All grating is trim-banded.

Allow for recesses in concrete if applicable

Top Width-A – Enter the top width of finished grating required. This is the area closest to the face of the structure.

Bottom Width-B – Enter the bottom width of finished grating required. This is the area furthest from the face of the structure.

Length of Diagonal-C – Enter the diagonal length. This is calculated using the 3-4-5 triangle method. PLEASE SEE SPECIFIC FORMULA FOR THIS AT THE END OF THIS DOCUMENT.

Grating Thickness – Enter the thickness of the rectangular bar grating. This is either 2 inches or 1.5 inches. Other sizes and material types are available upon request.

L & R Side Support Rails – Enter "y" if your grating requires Left & Right side support rails. If your structure has a recess cast into it, you do not need these. If it does not, it is recommended that you opt to install these. They are simply pieces of 1/4 x 2 1/2 x 2 1/2 aluminum angle that gets bolted onto the Left & Right sides of the concrete wing walls. The grating will lay on top of them. 3/8 x 3 inch stainless steel wedge anchors are included with this option.

Grating Fasteners – Enter the quantity of grating fasteners. You will receive 1/4 x 3 1/4 inch stainless steel wedge anchors if your structure has side recesses, or 1/4 x 2 1/2 inch stainless steel self tapping TEK screws if you require side support rails. Typically, fasteners are spaced at 24 inches on center. To determine quantity use this formula: (LENGTH OF DIAGONAL + LENGTH OF DIAGONAL) / 24.

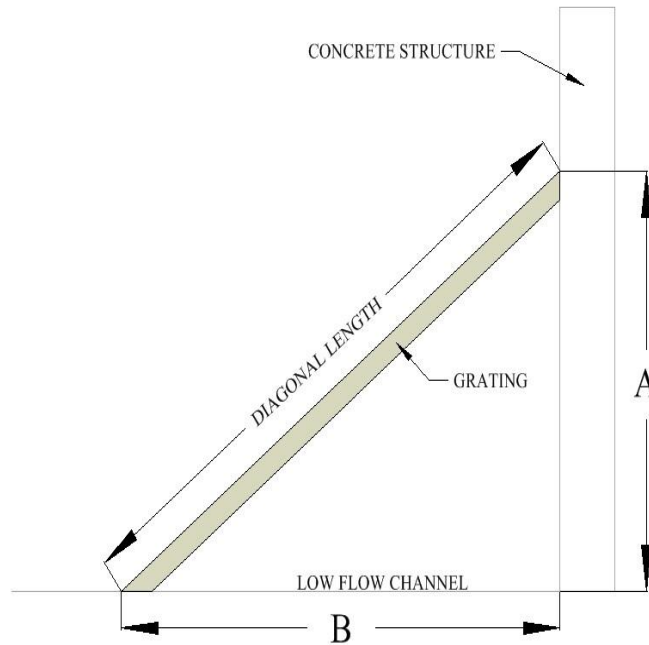
Saddle Clips – Enter quantity of stainless steel type CB saddle clips required. ONE PER GRATING FASTENER.

Top Hinge Plate – Enter "y" if the grating requires a top hinge assembly. This will bolt to the face of the structure. Fasteners are included with this option.

SEE HOW TO CALCULATE DIAGONAL FOR AWWG RACKS BELOW

Determining the Length of Diagonal
For Aluminum Wing Wall Type Grating (AWWG Series)
 All measurements must be converted to inches

Formula = Square Root of (Height of A x Height of A) + (Length of B x Length of B)



Simple Calculator Steps

1. $A \times A = ?$ Write this number down.
2. $B \times B = ?$ Add this number to the number you wrote down in step 1 and press the equals (=) sign.
3. Press the square root key ($\sqrt{\quad}$). This is the length of the diagonal.

Aluminum Grating Only (AG Series)

All grating is trim-banded.

Allow for recesses in concrete if applicable

Width - Enter the width of finished grating required.

Length - Enter the length of finished grating required.

Grating Thickness - Enter the thickness of the rectangular bar grating. This is either 2 inches or 1.5 inches. Other sizes and material types are available upon request.

Hinges - Enter "y" if the grating requires hinges. This allows for a hatch-type entry into the structure. The grating is still removable if there are no hinges.

Lock Hasp - Enter "y" if a lock hasp is required. **You MUST have hinges this option.** The grating will not be secure otherwise.

Fasteners - Enter the quantity of grating fasteners. You will receive either 1/4 x 3 1/4 inch stainless steel wedge anchors or stainless steel TEK (self tapping/drilling) screws depending on the application. Typically, fasteners are spaced at 24 inches on center. To determine quantity use this formula: $(\text{LENGTH} + \text{LENGTH} + \text{WIDTH} + \text{WIDTH}) / 24$.

Saddle Clips - Enter quantity of stainless steel type CB saddle clips required. ONE PER GRATING FASTENER.

Aluminum Cast-In Frame Only (AF Series)

Frames come with anchors welded to bottom for casting into concrete.

Frames are 1/4 x 2 1/2 x 2 1/2 inch aluminum angle.

Width ID - Enter width in inches of inside of concrete structure. This is also the inside dimension of the frame. We will add approximately 1/4 inch to this dimension to clear concrete forms.

Length ID - Enter length in inches of inside of concrete structure. This is also the inside dimension of the frame. We will add approximately 1/4 inch to this dimension to clear concrete forms.

Aluminum Peaked-Roof Type Racks (APR Series)

Typically used in lieu of top grating.

Structure Width ID – Enter the width in inches of the inside front wall of the concrete structure (not the desired rack size). This is the side of the structure that faces the low-flow channel and the center of the retention basin. The actual rack size will be rounded-up to the nearest bar centerline spacing required.

Structure Length ID - Enter the width in inches of the inside side walls of the concrete structure (not the desired rack size). This is the distance from front to back of the inside of the structure. The actual rack size will be rounded-up to the nearest bar centerline spacing required.

Peak Height – **PEAK HEIGHT IS CALCULATED AUTOMATICALLY BASED ON THE NARROWER DIMENSION OF STRUCTURE WIDTH AND STRUCTURE LENGTH ENTERED.** This is to keep the peak height lower. For example: If your structure is 144" x 48", the peak height would be 16" instead of 48". This is the most common design. **IF THE PEAK HEIGHT NEEDS TO BE THE TALLER OF THE TWO DIMENSIONS, PLEASE CONTACT US FOR PRICING.** The peak height is the highest point of the trash rack. Minor adjustments can be made prior to fabrication if necessary. The automatic calculation is used for pricing.

Side Height - Side height is calculated automatically. This is the height of the point where the bend toward the peak begins. If you think of a house, this is where the gutters are located. Minor adjustments can be made prior to fabrication if necessary. The automatic calculation is used for pricing.

Bar Diameter - - Enter the aluminum round bar diameter in inches. This should be found on your project details.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh - Enter "y" if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

Aluminum Triangular Type Racks (AT Series)

Typically used for upper weir protection.

Width ID – Enter the width in inches of the inside of the trash rack. CONCRETE OPENING WIDTH + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Height ID – Enter the height in inches of the inside of the trash rack. This is the distance from the bottom to the top. CONCRETE OPENING HEIGHT + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Depth – This is calculated automatically using the formula for a 30-60-90 degree triangle. This is the most commonly used weir rack. The 30-60-90 degree triangle configuration is structurally sound, and complies with the NJ Stormwater Best Practices Manual. Depths can be modified if necessary. Please call for assistance.

Bar Diameter – Enter the aluminum round bar diameter in inches. This should be found on your project details.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh – Enter "y" if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

Stainless Fasteners – Enter the quantity of 3/8 x 3 inch stainless steel concrete wedge anchors you require. Typically, they are spaced at a maximum of 18 inches apart. Calculate the perimeter of the rack and divide by 18. Round this number up. This will give you the recommended amount of fasteners.

Aluminum Flat Type Racks (AFR Series)

Not recommended for use as top of structure protection.

Width ID – Enter the width in inches of the inside of the trash rack. CONCRETE OPENING WIDTH + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Height ID – Enter the height in inches of the inside of the trash rack. This is the distance from the bottom to the top. CONCRETE OPENING HEIGHT + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Bar Diameter – Enter the aluminum round bar diameter in inches. This should be found on your project details.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh – Enter "y" if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

Stainless Fasteners – Enter the quantity of 3/8 x 3 inch stainless steel concrete wedge anchors you require. Typically, they are spaced at a maximum of 18 inches apart. Calculate the perimeter of the rack and divide by 18. Round this number up to nearest even number. This will give you the recommended amount of fasteners.

Aluminum Circular Type Racks (AC Series)

Typically used for headwalls and ends of pipe.

Diameter OD – Enter the width in inches of the outside diameter of the trash rack. CONCRETE OPENING WIDTH + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Bar Diameter – Enter the aluminum round bar diameter in inches. This should be found on your project details.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh – Enter “y” if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

Stainless Fasteners – Enter the quantity of 3/8 x 3 inch stainless steel concrete wedge anchors you require. Typically, they are spaced at a maximum of 18 inches apart. This is also the amount of mounting tabs that will be on the perimeter of the rack. Please note that the mounting tabs are 2” x 2” and will add to the overall OD of the rack. Tabs can be positioned at any location, and will be discussed prior to fabrication.

Aluminum Flared End Section Racks (AFES Series)

Used on pipe Flared End Sections

RCP Pipe Size – Enter the size of the pipe from the drop-down list. Elliptical (ERCP) and Round pipe sizes are available.

Bar Diameter – 3/4 inch diameter bars only. For pipe sizes 18” or less, 1/2 inch is available (call for pricing).

Bar CL Spacing - 6 inch centerline is standard. Please contact us if a different centerline is required.

Please note: The AFES Series racks are designed to fit concrete pipe. Our templates fit Oldcastle and Vianini pipe manufacturer’s Flared End Sections. The racks have long mounting tabs on them to fit most brands of RCP. The racks have been successfully installed on HDPE and CMP Flared End Sections because the long mounting tabs allow for flexibility.

Aluminum Pyramid Type Racks (AP Series)

Typically used in lieu of top grating. Similar to APR Series racks.

Structure Width ID – Enter the width in inches of the inside front wall of the concrete structure (not the desired rack size). This is the side of the structure that faces the low-flow channel and the center of the retention basin. The actual rack size will be rounded-up to the nearest bar centerline spacing required.

Structure Length ID - Enter the width in inches of the inside side walls of the concrete structure (not the desired rack size). This is the distance from front to back of the inside of the structure. The actual rack size will be rounded-up to the nearest bar centerline spacing required.

Peak Height – **PEAK HEIGHT IS CALCULATED AUTOMATICALLY BASED ON THE NARROWER DIMENSION OF STRUCTURE WIDTH AND STRUCTURE LENGTH ENTERED.** This is to keep the peak height lower. For example: If your structure is 144” x 48”, the peak height would be 16” instead of 48”. This is the most common design. **IF THE PEAK HEIGHT NEEDS TO BE THE TALLER OF THE TWO DIMENSIONS, PLEASE CONTACT US FOR PRICING.** The peak height is the highest point of the trash rack. Minor adjustments can be made prior to fabrication if necessary. The automatic calculation is used for pricing.

Bar Diameter - - Enter the aluminum round bar diameter in inches. This should be found on your project details.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh - Enter “y” if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

Aluminum Horizontal Bar Racks (AHB Series)

The bars in this rack run horizontally only.

Width ID – Enter the width in inches of the inside of the trash rack. CONCRETE OPENING WIDTH + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Height ID – Enter the height in inches of the inside of the trash rack. This is the distance from the bottom to the top of the 3/8” x 3” x 3” angle. CONCRETE OPENING HEIGHT + 4 INCHES is recommended so the sides of the concrete structure do not break while drilling for the fasteners.

Bar Diameter – Enter the aluminum round bar diameter in inches. Standard bar diameters are: 1”, 1.5”, 2”, and 2.5”.

Please note: 1” diameter bars are solid round bar. 1.5” and above are round tube with 1/4” wall thickness. This is so the rack remains lightweight.

Bar CL Spacing - Enter the distance required from the centerline to the centerline of the horizontal and vertical aluminum round bars. Some plans specify the actual opening (clear opening) in between the bars. In this case: BAR DIAMETER + CLEAR OPENING = BAR CL SPACING.

Wire Mesh – Enter “y” if required. Standard wire mesh is 10g welded galvanized steel wire with 1 x 1 inch grid.

Stainless Fasteners – Enter the quantity of 3/8 x 3 inch stainless steel concrete wedge anchors you require. Minimum of (4) required. Typically, fasteners are spaced at a maximum of 18 inches apart. Height x 2 divided by 18. Round this number up to nearest even number. This will give you the recommended amount of fasteners.

Aluminum Basin Traps (ATRAP Series)

Also known as "Hoods".

Typically used in structures with sumps to separate oils and debris

Pipe ID – Enter the ID of the pipe requiring this product. Please reference the our shop drawings to make sure it will fit inside of your structure, and cover the pipe.

Installation Note – Make sure that the pipe is trimmed flush with the concrete wall inside of the structure.

Ordering Information

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908.458.9220

908.458.9930 fax

sales@effluentdesignfab.com

Please include complete part number and purchase order number with all orders