

# highland

GALVANIZERS AND  
COLOUR COATERS

**FABRICATORS GUIDE  
FOR GALVANIZING**



# MINIMUM HOLE SIZES FOR HOLLOW SECTIONS

Steel is only slightly more dense than Zinc, so it doesn't take much air trapped inside or underneath a fabrication to make it float. If it floats, it CANNOT be galvanized. There must be adequate holes to let the air escape and Zinc in. Of course this means that it's galvanized both inside and out providing the best available corrosion protection.



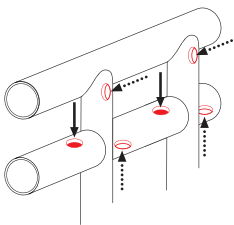
<b>Section Diameter/Width</b>	<b>Hole Size</b>
Up to 50mm	12mm dia each end
51-100mm	2 x 16mm
101-150mm	2 x 20mm
151-250mm	2 x 25mm
251mm and over	2 x 30mm
Irregular shape/size	Please ask

## **Galvanizing Tip**

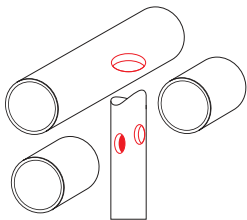
All steelwork needs to be suspended in order that we are able to process it. Sometimes a hole is required only to hang the item. For example a 100 x 4 flat @ 1000 long needs a suspension hole. A well designed item can utilise a hole for both suspension and venting, thus ensuring a quick service and quality finish.

# TUBULAR VENTING

Every sealed section of a hollow fabrication must be vented for both safety and quality. Each hole should be no more than 10mm from the adjacent weld. The vent and drain holes must be at opposite ends and opposite sides. This positioning must be consistent throughout i.e. all top holes to the right and all bottom holes to the left.



External Venting



Internal Venting

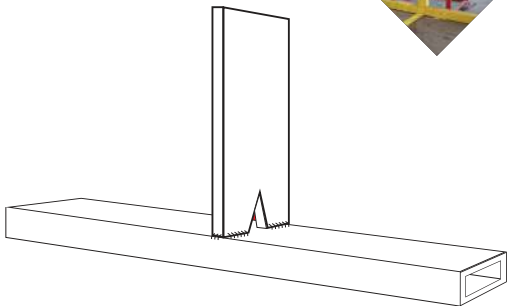
## Galvanizing Tip

If your customer doesn't want holes affecting the look of his job then internal venting may be considered. A hole would still be required at the top and bottom of the fabrication but all other sections would have the holes hidden by the welded hollow sections.

# HOLES OR NOTCHES

Box sections equally need vent and drain holes.

Sometimes it's easier to notch the section before welding. Just make sure not to weld up the notch!

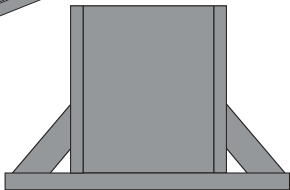
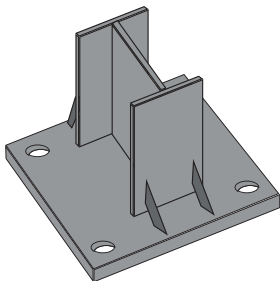


## **Galvanizing Tip**

Flat pack handrails are less expensive to galvanize and the quality is far better. Avoiding fabricating handrails into L shapes means the material is much easier to package and transport.

# STRUCTURAL STEEL

External stiffeners and gussets should be cropped to eliminate dead pockets.



## Galvanizing Tip

Our quality is as important to us as it is to you. The design of an item has a major influence on this so before you weld, pick up the phone or send us the drawing so that we can advise on any suggested changes that will ensure it's galvanized successfully first time round.

## BASE & CAP PLATES

Galvanizing is normally charged by the weight. If your design doesn't allow the zinc to fully drain it will leave excess zinc inside which will add to the cost of your galvanizing. The best quality galvanizing comes from well drained steel so for a few more holes you can save money and get a better finish.

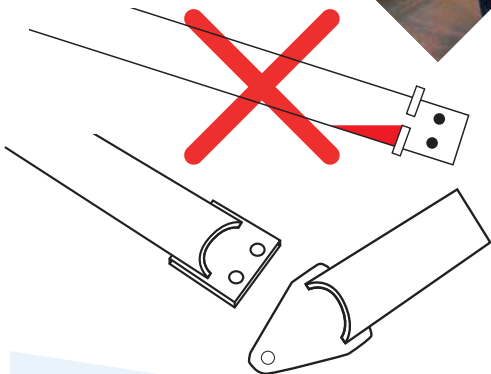


### Galvanizing Tip

For the best result leave the base plates completely open. This will stop any potential runs forming on the base which may affect installation. It also allows a quicker exit from the Zinc bath which improves the finish of the galvanizing.

# BRACERS

Drain holes in the centre of a bracer's end plate leaves trapped Zinc and can lead to unsightly runs. Here are two alternative suggestions with open ends which will ensure the best quality finish is achieved.



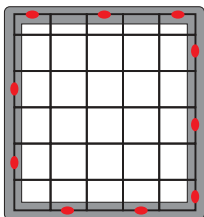
## Galvanizing Tip

Stuck for time? Try our Xpress galvanizing service which guarantees a 24 hour turnaround. There is an additional cost but you jump the queue, and if we don't deliver the service you don't pay any extra. To arrange just give us a call or mark Xpress on your paperwork.

\*subject to available capacity

# MESH FRAMES

The last thing you need is broken wires in a mesh frame, but it often happens. On cooling from  $450^{\circ}\text{C}$  the wire contracts and pulls against the frame which is cooling slower than the wire. As the frame is stronger, the wire ends up breaking. To stop this, arrange that no wire has both ends welded to the frame. Either stagger the welds, or weld the edges as in the drawing. Just use spot welds, leaving the cross wires free to contract.



## Galvanizing Tip

During the fabrication process weld spatter and drill swarf can accumulate on the surface of the steelwork. These will not be removed during the galvanizing process and can often end up appearing unsightly on the finished item. All spatter and swarf should be removed before the item is sent for galvanizing. Be careful not to use silicone based mig anti-spatter sprays, as these interfere with the galvanizing process. Compatible sprays are available.



# PROCESS ISSUES

## Paint, Oil and Grease

Paint or oil on your steelwork will prevent it from being galvanized. The steel surface must be chemically clean and our pre-treatment will only remove so much. Paint has to be removed by grinding or shot blasting, which will result in delays and additional costs. Try to avoid using painted steel, and try not to get the job covered with grease and oil. It could cost you money and time that you did not allow for.



## Distortion

Distortion cannot be ruled out, and mostly cannot be predicted by the galvanizer. It can result from partial stress relief as the steel heats up to 450°C and then cools down again. The use of cramps to 'pull' steel into place during welding is a strong indicator of built in stress. Stresses are also experienced when thin and thick sections are welded together over any length. Much like mesh frames, the thinner section cooling faster than the thick causes huge stress, sometimes buckling the steel.

### **Galvanizing Tip**

Some marker pens will not be removed by our pre-treatment process and will either affect the quality of the finished coating or will incur extra charges for removal. We can advise you of the markers that are easily removed in our process.

# MAXIMUM SIZES

Our galvanizing bath in **Elgin** measures **10.5 m long x 1.1 m wide x 2.5 m deep** which allows processing of steelwork of up to **14 m in length and 1.05 in width.**

Our galvanizing bath in **Cumbernauld** measures **7 m long x 1.2 m wide x 3 m deep** which allows processing of steelwork of up to **10.5 m in length and 1.15 in width.**



## Galvanizing Tip

If you have an unusual shape, or are unsure about the item fitting our process give us a call, we'll be pleased to help. It's a lot cheaper to phone first than to find that something cannot be processed because it's been made too big. There are lots of ways to avoid dimension issues.

# COLOURGALV

Colourgalv combines all the benefits of galvanizing with the advantage of being available in every colour. Galvanizing on its own will last for decades. Its corrosion protection is legendary but it can look a bit industrial.

Where aesthetics are more important, you can deliver colour for your customer. Simply specify Colourgalv when arranging your coating, telling us which colour and texture you would like and we'll arrange the rest. We can also provide brochures, case studies and samples to help you explain the benefits to your customer.



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colourgalv

## Galvanizing Tip

By choosing Colourgalv you can save time that would otherwise be taken up by painting yourself or dropping the material off at the paint shop.

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## GALVANIZERS AND COLOUR COATERS

Highland have been galvanizing since 1978 and in this time we have coated in excess of 350,000 tonnes of steel that has been destined for many different uses in a wide variety of industries.



### **Highland Colour Coaters**

Tower Road,  
Blairlinn Ind. Est.,  
Cumbernauld G67 2JH  
**T: 01236 731 444**

### **Highland Galvanizers**

Pinefield Parade,  
Elgin,  
Moray,  
IV30 6FG  
**T: 01343 548 855**

[www.higalv.co.uk](http://www.higalv.co.uk)