

GALVANeyes

Issue 29

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Hereford
Galvanizers



Shropshire
Galvanizers

www.galvanizers.co.uk

Environment and efficiency

Industrial processes sometimes produce side effects that can be harmful to the environment. Hot dip galvanizing is a very intensive industrial process but also a sustainable one. Every year UK galvanizers extend the life of thousands of tonnes of steel and the coating used (zinc) is itself recyclable. In addition, every member of the Galvanizers Association takes their obligation to minimise their impact on the environment very seriously and Hereford and Shropshire Galvanizers are no exception.

Since 2008, we (the Hereford Galvanizers group) have reduced our energy consumption/processed tonnage by 8.6% and here's how.

A large proportion of the energy we use is spent on maintaining the zinc in our kettle at around 450°C. As you can imagine, this takes some doing. Our new gas modulating system has helped to significantly reduce the gas required to do so.

The heat by-product from our pot furnace is also channelled into our drying chamber (steel needs to be dry before dipping) eliminating the requirement for two heat sources.

Low energy light bulbs and new translucent roofing sections have helped reduce our lighting bills.



*David Watkins,
Managing Director*

Our new 44 tonne Euro 5 lorry tractor units have much lower emissions than the older units they recently replaced.

A new heating and agitation system for our acid baths result in faster 'pickling' times and a longer acid life. We estimate that we use around 5% less acid as a result and produce much less waste.

We process the residues formed during the galvanizing process (dross and zinc ash) in order to recycle the zinc. This recycling amounts to 12% of our zinc usage.

We are justifiably proud that the product we offer and the means by which we achieve it are as sustainable as we can make them. That said, we continue to look for ways to galvanize in as environmentally friendly way as possible.

Enjoy GALVANeyes.



Duplex racking

Timet is the world's largest supplier of high quality titanium metal products. Due to its metallurgical properties titanium is the material of choice for many applications from aeroplanes to golf clubs. Timet converts the ore and stores the metal in a variety of forms including the bars shown below.

The group's UK operation, based in Birmingham, wanted to improve the efficiency of their storage operation where the titanium was stored at ground level. In order to maximise the storage capacity of the site, improve stock control and reduce damage Timet called upon the services of Worcester based Wickens Engineering.

Wickens Engineering manufacture a variety of out-door racking products that are galvanized by Hereford Galvanizers. Neil Bates,

Wickens Engineering's Sales Manager said 'Our heavy duty cantilever racking was the storage solution to Timet's issue however, not only did they want the corrosion protection that galvanizing offers but they wanted it to look good and colour-match the existing site. Hereford Galvanizers came up with the answer.'

The racking steelwork was first hot dip galvanized by Hereford Galvanizers' sister plant Shropshire Galvanizers, the galvanized steel was then finished to a high standard before being etched and powder coated

the specific blue as requested by Timet. In addition Shropshire Galvanizers stencilled the various maximum weight loadings onto the cantilever arms.

Timet were delighted with the results. Neil Bates of Wickens Engineering said 'The powder coating finish was consistently excellent. Outsourcing all coatings to one supplier meant that there was no double handling and the racking was installed on site within the tight deadline. Six months on and the powder coating is still equal to the pounding it is receiving from the heavy titanium bars.'



Powder Coating Pre-treatment

We have just installed a new automated system for chemically etching galvanized steelwork in preparation for powder coating. The new kit will enable us to process your duplex coatings faster than ever.

Please contact us for more information regarding powder coating





David Howle
Works Manager
Hereford Galvanizers

Technical bit

Distortion is one of those seemingly random occurrences that can ruin fabrications and prove costly. Why does it happen? Can anything be done by galvanizers or fabricators to prevent it happening?

Remember, if in doubt please contact us.



Mike Jones
Production Supervisor
Shropshire Galvanizers

Distortion

WHAT CAUSES DISTORTION?

1. Inherent stresses

Your steel may have internal stresses which will become apparent when dipped in 450°C of molten zinc. One batch of steel could distort and the next batch of seemingly similar sections would not.

2. Fabrication stresses

As fabricators, you can reduce the distortion potential at the design and fabrication stage. Stresses can be introduced by welding, forming or by punching holes. Some distortion give-aways:

When steel sections of a significantly different thickness are joined together.

Asymmetrical sections (e.g. channels) are more likely to distort than symmetrical ones (e.g. I-beams).

Rectangular or elliptical vessels are more likely to distort than cylindrical ones.

The lighter the gauge of steel, the more likely it will distort.

WHAT CAN BE DONE TO LIMIT DISTORTION?

A) Welding – Welding creates residual internal stresses due to the extreme differences in temperature in small areas. We would recommend:

- i) Thick sections should be continuously welded. Thin sections and sheet fabrications may benefit from intermittent welding.
- ii) Components of an assembly should be preformed accurately so that they need not be forced, sprung or restrained during welding.
- iii) As far as possible, welded assemblies should be aligned so that the stresses are balanced instead of all pulling in one direction.

B) Material variations – Steel sections should vary as little as possible. Thick and thin sections absorb and lose heat at different rates and so can expand and contract unevenly.

Large unsupported flat sheet may tend to buckle so stiffeners should be included in the design. Frames around flat panels (solid or welded mesh) should be galvanized separately as the frame would offer a constraint and so tend to cause buckling.

Where there is an inherent tendency to distort e.g. asymmetrically shaped fabrications, the effect can be minimised by ensuring that the fabrication can be rapidly immersed by your galvanizer in a single dip. Consult with us if you have any questions regarding what will fit and what will not. There is little or no distortion in standard symmetrical components whether they are single or double dipped.

The size and position of drainage/ventilation holes in hollow fabrications can have a major effect on distortion as this will determine the dipping speed.



Employee focus

Name: Derek Brown
Title: Shift Supervisor
Started: July 1998



Derek is responsible for the smooth running of one of our day shifts. His promotion from the ranks in 2010 has proven to be an excellent choice as Derek's brand of enthusiasm and wit has impressed all. Derek plays golf to a mediocre standard and lives in Hereford with his long suffering wife Jeanette. They have two children and one grandchild.



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Congratulations to Ralph Hinchcliffe who correctly answered 200°C to the powder coating curing oven temperature question in the previous edition of GALVANeyes. Ralph is now the proud owner of a case of Wye Valley beer. Here he is after enjoying a long pull of 'Dorothy Goodbody' ale.

Competition time...

A big thank you to all those who took part in the competition in the previous edition of GALVANeyes. Here is another opportunity to win. This time the prize is a case of Herefordshire wine from Bodenham English Wines vineyard near Hereford. All you need to do is answer the following question...



What percentage of our zinc usage is recycled in-house?

Please answer and complete your contact details below and post, fax or email this page back to Hereford Galvanizers (for contact details see top right of page) by **29th February 2012** to enter the draw.

Name: Company:

Address:

..... Post code:

Tel: Fax:

Email:

The first correct answer drawn from a hat by our Managing Director, Dave Watkins, will win. The winner will be announced in the next edition of GALVANeyes. Good luck.

