

The old BS1470 standard has been replaced by nine EN standards:

- EN485-1: Technical conditions for inspection and delivery
- EN485-2: Mechanical Properties
- EN485-3: Tolerances for HOT Rolled Material
- EN485-4: Tolerances for COLD Rolled material
- EN515: Temper Designations
- EN573-1: Numerical alloy designation system
- EN573-2: Chemical symbol designation system
- EN573-3: Chemical Compositions
- EN573-4: Product forms in different alloys

For those familiar with the old BS1470 it is useful to highlight where the new EN standards differ:

- Chemical Compositions – No Change.
- Alloy Numbering System – No Change.
- Temper Designations for Heat Treatable Alloys – A new wider range of special tempers having up to four digits after the T have been introduced for non-standard applications (e.g. T6151).
- Temper Designations for Non Heat Treatable Alloys – No change to existing tempers but a more comprehensive definition of how tempers are achieved.
- Mechanical Properties – Similar but not identical. Also, 0.2% Proof Stress must now be quoted on test certificates.
- Thickness Tolerances – Considerably tighter for alloys 1050A & 3103. To reflect manufacturing difficulty the tolerances for alloys 5251, 5083 & 6082 are now wider than this, although still a little tighter than in BS1470.
- Length and Width Tolerances – These tend to be tighter and are now all on the plus side (i.e. minus zero).
- Flatness Tolerances – These are considerably tighter.

### ALLOY GROUPS

Please note that thickness tolerances for Cold Rolled material vary according to Alloy, with the Alloys falling into two groups as shown below.

| Alloy Group I   |  |
|---|--|
| 1080A, 1070A, 1050A, 1200                                   |  |
| 3003, 3103, 3005, 3105                                      |  |
| 4006, 4007  |  |
| 5005, 5050  |  |
| 8011A   |  |
| Alloy Group II  |  |
| 2014, 2017A, 2024   |  |
| 3004  |  |
| 5040, 5049, 5251, 5052, 5154A, 5454, 5754, 5182, 5083, 5086 |  |
| 6061, 6082  |  |
| 7020, 7021, 7022, 7075                                      |  |

### THICKNESS TOLERANCES - COLD ROLLED SHEET & STRIP

Please note that thickness tolerances for Cold Rolled material vary according to Alloy, with the Alloys falling into two groups as shown above.

The thickness tolerances also vary according to the width of the material as shown in the tables below.

| Thickness mm | Tolerance (+/-)mm   |                     |                     |
|--------------|---------------------|---------------------|---------------------|
|              | Group I 1000mm wide | Group I 1250mm wide | Group I 1500mm wide |
| 0.2 to 0.4   | 0.02                | 0.04                | 0.05                |
| 0.41 to 0.50 | 0.03                | 0.04                | 0.05                |
| 0.51 to 0.60 | 0.03                | 0.05                | 0.06                |
| 0.61 to 0.80 | 0.03                | 0.06                | 0.07                |
| 0.81 to 1.0  | 0.04                | 0.06                | 0.08                |
| 1.1 to 1.2   | 0.04                | 0.07                | 0.09                |
| 1.21 to 1.50 | 0.05                | 0.09                | 0.10                |
| 1.51 to 1.80 | 0.06                | 0.10                | 0.11                |
| 1.81 to 2.0  | 0.06                | 0.11                | 0.12                |
| 2.1 to 2.5   | 0.07                | 0.12                | 0.13                |
| 2.6 to 3.0   | 0.08                | 0.13                | 0.15                |
| 3.1 to 3.5   | 0.10                | 0.15                | 0.17                |

THICKNESS TOLERANCES - COLD ROLLED SHEET & STRIP

| Thickness mm | Tolerance (+/-)      |                      |                      |
|--------------|----------------------|----------------------|----------------------|
|              | Group II 1000mm wide | Group II 1250mm wide | Group II 1500mm wide |
| 0.2 to 0.4   | 0.03                 | 0.05                 | 0.06                 |
| 0.41 to 0.50 | 0.03                 | 0.05                 | 0.06                 |
| 0.51 to 0.60 | 0.04                 | 0.06                 | 0.07                 |
| 0.61 to 0.80 | 0.04                 | 0.07                 | 0.08                 |
| 0.81 to 1.0  | 0.05                 | 0.08                 | 0.09                 |
| 1.1 to 1.2   | 0.05                 | 0.09                 | 0.10                 |
| 1.21 to 1.50 | 0.07                 | 0.11                 | 0.12                 |
| 1.51 to 1.80 | 0.08                 | 0.12                 | 0.13                 |
| 1.81 to 2.0  | 0.09                 | 0.13                 | 0.14                 |
| 2.1 to 2.5   | 0.10                 | 0.14                 | 0.15                 |
| 2.60 to 3.0  | 0.11                 | 0.15                 | 0.17                 |
| 3.1 to 3.5   | 0.12                 | 0.17                 | 0.19                 |

THICKNESS TOLERANCES - COLD ROLLED SHEET & STRIP

| Thickness mm | Tolerance (+/-)        |                        |                        |
|--------------|------------------------|------------------------|------------------------|
|              | Group I/II 1000mm wide | Group I/II 1250mm wide | Group I/II 1500mm wide |
| 3.6 to 4.0   | 0.15                   | 0.20                   | 0.22                   |
| 4.1 to 5.0   | 0.18                   | 0.22                   | 0.24                   |
| 5.1 to 6.0   | 0.20                   | 0.24                   | 0.25                   |
| 6.1 to 8.0   | 0.24                   | 0.30                   | 0.31                   |
| 8.1 to 10.0  | 0.27                   | 0.33                   | 0.36                   |
| 10.1 to 12.0 | 0.32                   | 0.38                   | 0.40                   |
| 12.1 to 15.0 | 0.36                   | 0.42                   | 0.43                   |
| 15.1 to 20   | 0.38                   | 0.44                   | 0.46                   |
| 21 to 25     | 0.40                   | 0.46                   | 0.48                   |
| 26 to 30     | 0.45                   | 0.50                   | 0.53                   |
| 31 to 40     | 0.50                   | 0.55                   | 0.58                   |
| 41 to 50     | 0.55                   | 0.60                   | 0.63                   |

THICKNESS TOLERANCES - HOT ROLLED PLATE

| Thickness mm | Tolerance (+/-) |             |
|--------------|-----------------|-------------|
|              | 1250mm Wide     | 1500mm Wide |
| 2.5 to 4.0   | 0.28            | 0.28        |
| 4.1 to 5.0   | 0.30            | 0.30        |
| 5.1 to 6.0   | 0.32            | 0.32        |
| 6.1 to 8.0   | 0.35            | 0.40        |
| 8.1 to 10.0  | 0.45            | 0.50        |
| 10.1 to 15.0 | 0.50            | 0.60        |
| 15.1 to 20   | 0.60            | 0.70        |
| 21 to 30     | 0.65            | 0.75        |
| 31 to 40     | 0.75            | 0.85        |
| 41 to 50     | 0.90            | 1.0         |
| 51 to 60     | 1.1             | 1.2         |
| 61 to 80     | 1.4             | 1.5         |
| 81 to 100    | 1.7             | 1.8         |
| 101 to 150   | 2.1             | 2.2         |
| 151 to 220   | 2.5             | 2.6         |
| 221 to 350   | 2.8             | 2.9         |
| 351 to 400   | 3.5             | 3.7         |

LENGTH TOLERANCES

| Thickness mm | Hot Rolled EN485-3 (-0mm) Plus: | Cold Rolled EN 485-4 (-0mm) Plus: |
|--------------|---------------------------------|-----------------------------------|
| 0.2 to 3.0   | 8.0mm                           | 6.0mm                             |
| 3.0 to 6.0   | 8.0mm                           | 8.0mm                             |
| 6.0 to 12.0  | 8.0mm                           | 10mm                              |
| 12.0 to 50.0 | 9.0mm                           | -                                 |
| over 50.0    | 9.0mm                           | -                                 |

Applies to lengths 2001mm to 3000mm

## WIDTH TOLERANCES

| Thickness mm | Hot Rolled<br>EN485-3 (-0mm)<br>Plus:    | Cold Rolled EN<br>485-4 (-0mm)<br>Plus: |
|--------------|--|---|
| 0.2 to 3.0   | -  | 3.0mm                                   |
| 3.1 to 6.0   | 7.0mm                                    | 4.0mm                                   |
| 6.1 to 12.0  | 7.0mm                                    | 5.0mm                                   |
| 12.1 to 50.0 | 8.0mm                                    | -                                       |
| 51.0 to 200  | 8.0mm                                    | -                                       |
| 201 to 400   | 11.0mm                                   | -                                       |
|              | Applies to widths<br>1001mm to<br>2000mm | Applies to widths<br>501mm to<br>1250mm |

## FLATNESS TOLERANCES

| Product     | Thickness<br>mm | Max<br>Deviation<br>over<br>2500mm<br>length | Max<br>Deviation<br>over<br>1250mm<br>width |
|-------------|-----------------|--|---|
| Cold Rolled | 0.5 to 3.0      | 10.0mm                                       | 5.0mm                                       |
|             | 3.0 to 6.0      | 7.5mm  | 3.75mm                                      |
| Hot Rolled  | 6.0 to 200      | 5.0mm  | 2.5mm                                       |

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## REVISION HISTORY

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