

**STRENX™**  
PERFORMANCE STEEL

# STRENX GUARANTEES



**SSAB**

# Strenx guarantees

SSAB continuously works to improve the production processes in order to develop new and better products. This has resulted in the ability to guarantee both closer tolerances and improved workshop properties. SSAB's Strenx guarantees include tight thickness tolerances, tight flatness tolerances, as well as bending guarantees. These product guarantees have been made in order to further enhance our promise of workshop performance. You can find the relevant tolerance class for each steel grade in the respective data sheet.

## Thickness guarantee

SSAB guarantees a maximum thickness variation within one plate and strip as specified in the thickness tables below.

### Thickness guarantee - Hot Rolled Plate

The thickness tolerances according to SSAB's Thickness guarantee are closer than those specified in EN 10 029 except for  $\geq 80$  mm, for which the tolerance range is according to standard.

| Nominal Thickness (mm) | Steel Thickness (mm) |      |              |
|------------------------|----------------------|------|--------------|
|                        | Min                  | Max  | Within Plate |
| 4.0 - 4.9              | -0.3                 | +0.3 | 0.4          |
| 5.0 - 7.9              | -0.3                 | +0.4 | 0.5          |
| 8.0 - 14.9             | -0.5                 | +0.4 | 0.6          |
| 15.0 - 24.9            | -0.6                 | +0.4 | 0.6          |
| 25.0 - 39.9            | -0.7                 | +0.8 | 0.7          |
| 40.0 - 79.9            | -0.9                 | +1.4 | 1.2          |
| 80.0 - 160.0           | -1.1                 | +2.1 | 1.5          |

Other tolerance classes within the above defined tolerance ranges can be supplied after agreement.

Thickness tolerance - extra close can be supplied after special agreement for plate.

## Thickness guarantee - Hot Rolled Strip

The thickness tolerances according to SSAB's Thickness guarantee are closer than those specified in EN 10 051 for hot rolled strip products.

| Nominal Thickness (mm) | Nominal Width (mm) |                      |                      |
|------------------------|--------------------|----------------------|----------------------|
|                        | $w \leq 1200$      | $1200 < w \leq 1500$ | $1500 < w \leq 1800$ |
| $t \leq 2.00$          | $\pm 0.12$         | $\pm 0.14$           | $\pm 0.15$           |
| $2.00 < t \leq 2.50$   | $\pm 0.13$         | $\pm 0.15$           | $\pm 0.16$           |
| $2.50 < t \leq 3.00$   | $\pm 0.14$         | $\pm 0.16$           | $\pm 0.17$           |
| $3.00 < t \leq 4.00$   | $\pm 0.16$         | $\pm 0.17$           | $\pm 0.18$           |
| $4.00 < t \leq 5.00$   | $\pm 0.17$         | $\pm 0.18$           | $\pm 0.20$           |
| $5.00 < t \leq 6.00$   | $\pm 0.18$         | $\pm 0.20$           | $\pm 0.21$           |
| $6.00 < t \leq 8.00$   | $\pm 0.21$         | $\pm 0.21$           | $\pm 0.22$           |
| $8.00 < t \leq 10.0$   | $\pm 0.23$         | $\pm 0.23$           | $\pm 0.24$           |
| $10.00 < t \leq 12.50$ | $\pm 0.25$         | $\pm 0.25$           | $\pm 0.26$           |
| $12.50 < t \leq 15.00$ | $\pm 0.26$         | $\pm 0.27$           | $\pm 0.28$           |
| $15.00 < t \leq 25.00$ | $\pm 0.28$         | $\pm 0.30$           | $\pm 0.32$           |

All values in the table conform to 1/2 EN Category D.

Thickness tolerance - extra close can be supplied after special agreement for hot rolled strip products.

## Thickness guarantee - Cold Rolled Strip

The thickness tolerances according to SSAB's Thickness guarantee are according to those specified in EN 10 131 for cold rolled products.

| Nominal Thickness (mm) | Nominal Width (mm) |                   |            |
|------------------------|--------------------|-------------------|------------|
|                        | $\leq 1200$        | $>1200 \leq 1500$ | $>1500$    |
| $= 0.35$ to $0.40$     | $\pm 0.05$         | $\pm 0.06$        | $\pm 0.07$ |
| $> 0.40$ to $0.60$     | $\pm 0.05$         | $\pm 0.07$        | $\pm 0.08$ |
| $> 0.60$ to $0.80$     | $\pm 0.06$         | $\pm 0.08$        | $\pm 0.10$ |
| $> 0.80$ to $1.00$     | $\pm 0.08$         | $\pm 0.10$        | $\pm 0.11$ |
| $> 1.00$ to $1.20$     | $\pm 0.10$         | $\pm 0.11$        | $\pm 0.13$ |
| $> 1.20$ to $1.60$     | $\pm 0.13$         | $\pm 0.14$        | $\pm 0.16$ |
| $> 1.60$ to $2.00$     | $\pm 0.16$         | $\pm 0.17$        | $\pm 0.19$ |
| $> 2.00$ to $2.50$     | $\pm 0.19$         | $\pm 0.20$        | $\pm 0.22$ |
| $> 2.50$ to $3.00$     | $\pm 0.22$         | $\pm 0.23$        | $\pm 0.24$ |

Other tolerance classes within the above defined tolerance ranges can be supplied after agreement.

## Flatness guarantee

SSAB has four classes of flatness tolerances which depend on the type of product and material strength. All classes conform to or are closer than EN 10 029. Classes A and B also conform to, or are closer than En 10 051 and EN 10 131.

| Class | Nominal Thickness (mm) | Flatness (mm/1m ruler) |
|-------|------------------------|------------------------|
|       |                        | Steel Flatness         |
| A     | 1.5 - 2.9              | 3                      |
|       | 3.0 - 4.9              | 3                      |
|       | 5.0 - 7.9              | 3                      |
|       | 8.0 - 14.9             | 3                      |
|       | 15.0 - 24.9            | 3                      |
| B     | 0.7 - 2.9              | 6                      |
|       | 3.0 - 4.9              | 6                      |
|       | 5.0 - 7.9              | 6                      |
|       | 8.0 - 14.9             | 6                      |
|       | 15.0 - 24.9            | 6                      |
| C     | 4.0 - 4.9              | 5                      |
|       | 5.0 - 7.9              | 4                      |
|       | 8.0 - 39.9             | 3                      |
|       | 40.0 - 160.0           | 3                      |
| D     | 4.0 - 4.9              | 7                      |
|       | 5.0 - 5.9              | 5                      |
|       | 6.0 - 19.9             | 4                      |
|       | 20.0 - 40.0            | 3                      |

Flatness is measured according to standard EN 10 029 for classes C and D. Regarding Class A and B the flatness is measured according to EN 10 051 and EN 10 131. Information on which class applies to each grade is provided in the respective data sheet.

## Bending guarantee

SSAB has four Bending guarantee Classes for plate according to the table below. Information on which class applies to each grade is provided in the respective data sheet. All classes conform to or are closer than the requirements in EN 10 025-6. The Bending guarantees also conform to EN ISO 7438.

Strenx MC steels have a guaranteed minimum bending radius, valid for both longitudinal and transversal directions, that are closer than standard EN 10 149. Check the data sheet for guaranteed values.

Strenx CR steels have a guaranteed minimum bending radius, valid for both longitudinal and transversal directions. Check the data sheet for guaranteed values.

| Class | Nominal Thickness (mm) | Punch Radius Minimum R/t <sup>1)</sup> |                 |
|-------|------------------------|----------------------------------------|-----------------|
|       |                        | Bending Direction                      |                 |
|       |                        | ⊥ <sup>2)</sup>                        | ∥ <sup>2)</sup> |
| A     | t < 8                  | 1.5                                    | 2.0             |
|       | 8 ≤ t < 15             | 1.5                                    | 2.0             |
|       | 15 ≤ t < 20            | 2.0                                    | 2.5             |
|       | t ≤ 20                 | 2.0                                    | 2.5             |
| B     | t < 8                  | 2.5                                    | 3.0             |
|       | 8 ≤ t < 15             | 2.5                                    | 3.0             |
|       | 15 ≤ t < 20            | 2.5                                    | 3.0             |
|       | t ≤ 20                 | 3.0                                    | 3.5             |
| C     | t < 8                  | 3.0                                    | 3.5             |
|       | 8 ≤ t < 15             | 3.0                                    | 3.5             |
|       | 15 ≤ t < 20            | 3.0                                    | 3.5             |
|       | t ≤ 20                 | 3.5                                    | 4.0             |
| D     | t < 8                  | 3.5                                    | 4.0             |
|       | 8 ≤ t < 15             | 4.0                                    | 4.5             |
|       | t ≤ 20                 |                                        |                 |

<sup>1)</sup> R/t stands for punch radius (R) divided by sheet thickness (t). The guaranteed values are valid under conditions given in the brochure Bending of High Strength Steel.

<sup>2)</sup> The plate rolling direction



SSAB is a Nordic and US-based steel company. SSAB offers value added products and services developed in close cooperation with its customers to create a stronger, lighter and more sustainable world. SSAB has employees in over 50 countries. SSAB has production facilities in Sweden, Finland and the US. SSAB is listed on Nasdaq Stockholm and has a secondary listing on Nasdaq Helsinki. [www.ssab.com](http://www.ssab.com). Join us also on social media: Facebook, Instagram, LinkedIn, Twitter and YouTube.

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