The power of steel: Exploring the latest high-performance steel grades for industrial applications

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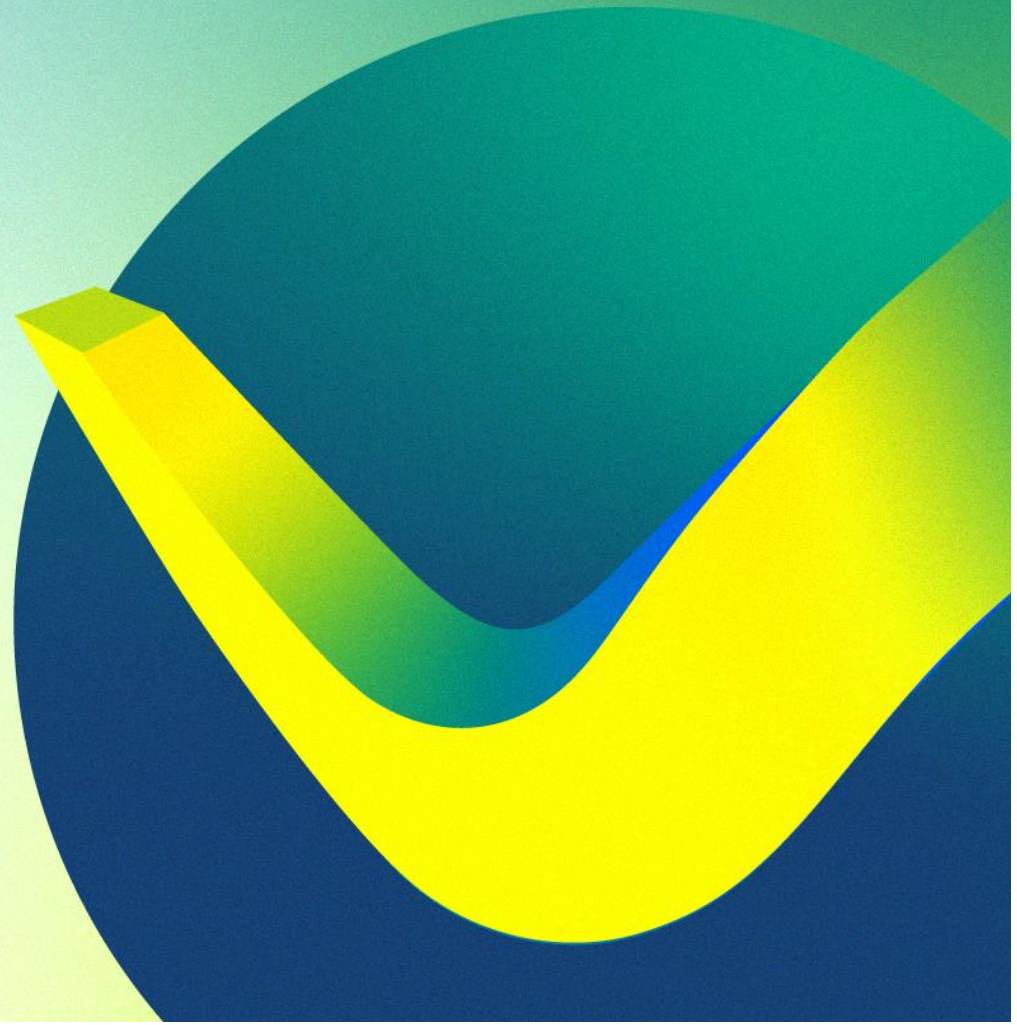

Can you recognize these challenges?

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- Tight tolerance demands in drawings
- Quite high scrap ratio
- Poor cutting edge
- Multiple stops in unmanned production
- Deviations in bending
- Cracking in bending
- Details not fitting properly in welding
- Poor surface quality
- Variations in properties

What demands must steel have?

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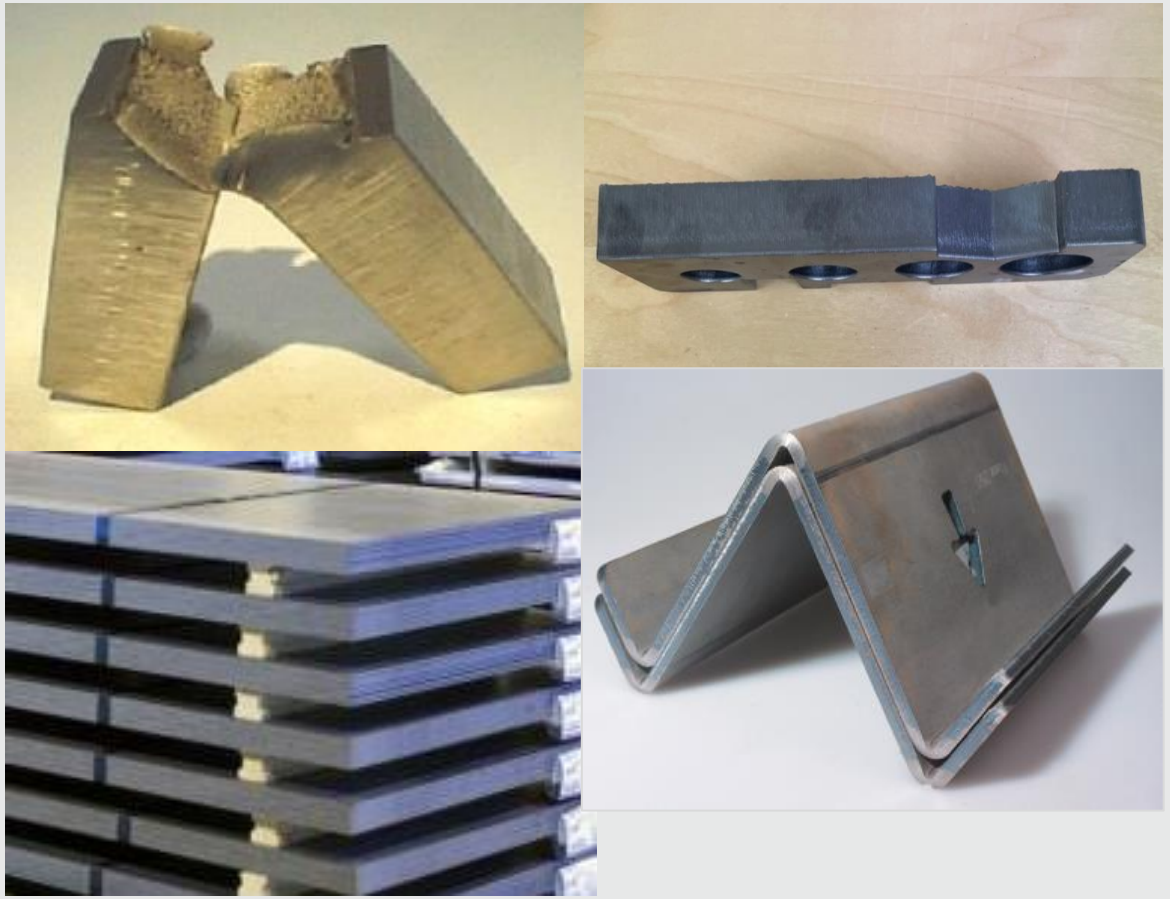
- Mechanical properties
- Small variations in properties
- Proper chemical composition
- Ease to hot-dip galvanization
- Good cut edge quality
- Good surface quality and flatness
- Dimensional accuracy
- Good bendability
- Good weldability $CEV = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Cu+Ni}{15}$
- Good impact toughness at low temperatures



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MAXIMIZE YOUR OUTPUT WITH STEEL OPTIMIZED FOR LASER CUTTING

SSAB Laser® offers several benefits, including

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- Superior steel cleanliness
- Optimized and consistent chemistry
- Narrow and consistent dimensional tolerances
- Properties that exceed EN standards
- Optimized surface quality for laser cutting
- Tight nesting with shared cutting lines
- Same bending properties in all directions
- High-quality cut edges even at high cutting speeds
- Flatness deviation of cut parts ≤ 3.0 mm/m
- Predictable and repetitive performance in cold forming
- SSAB Laser®Plus
- Enchanced impact toughness at low temperatures and inner bending radius 0.0 x thickness

More efficient material consumption

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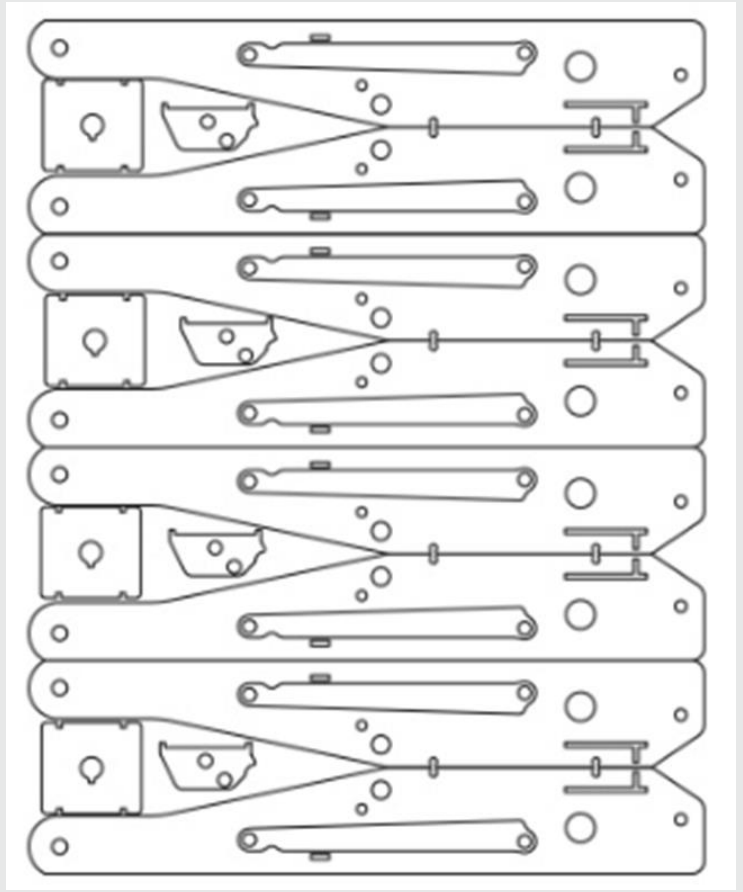
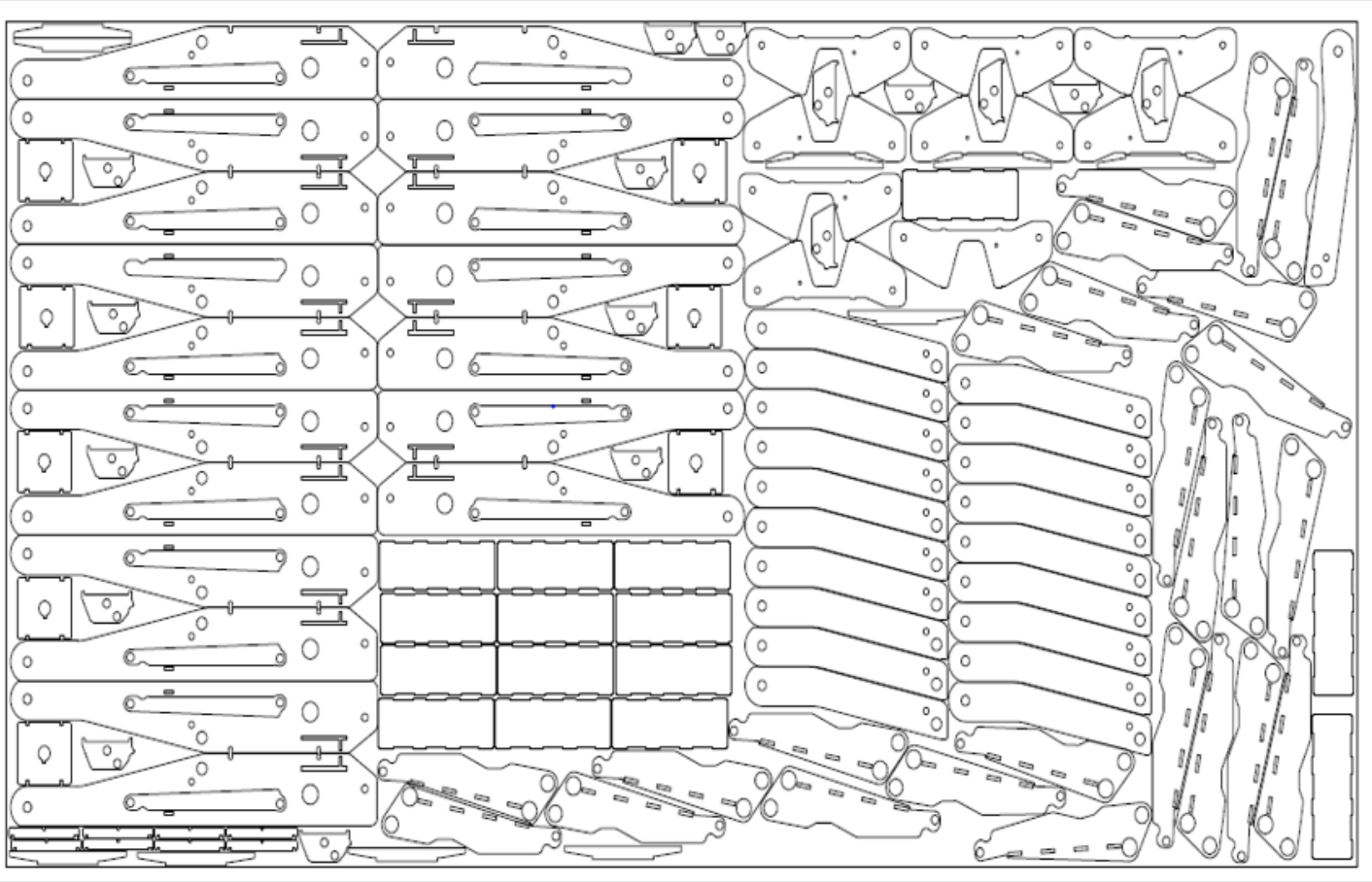
- Superior flatness behavior and cut quality typically enable tighter nesting of parts
- Depending on the specific parts in the nest, shared cutting paths can be used
  - Sometimes this is the correct way to go in order to avoid bowing of the skeleton
- By optimizing the starting points and parts positioning, tighter nesting can often be achieved



Nesting example



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Laser cutting

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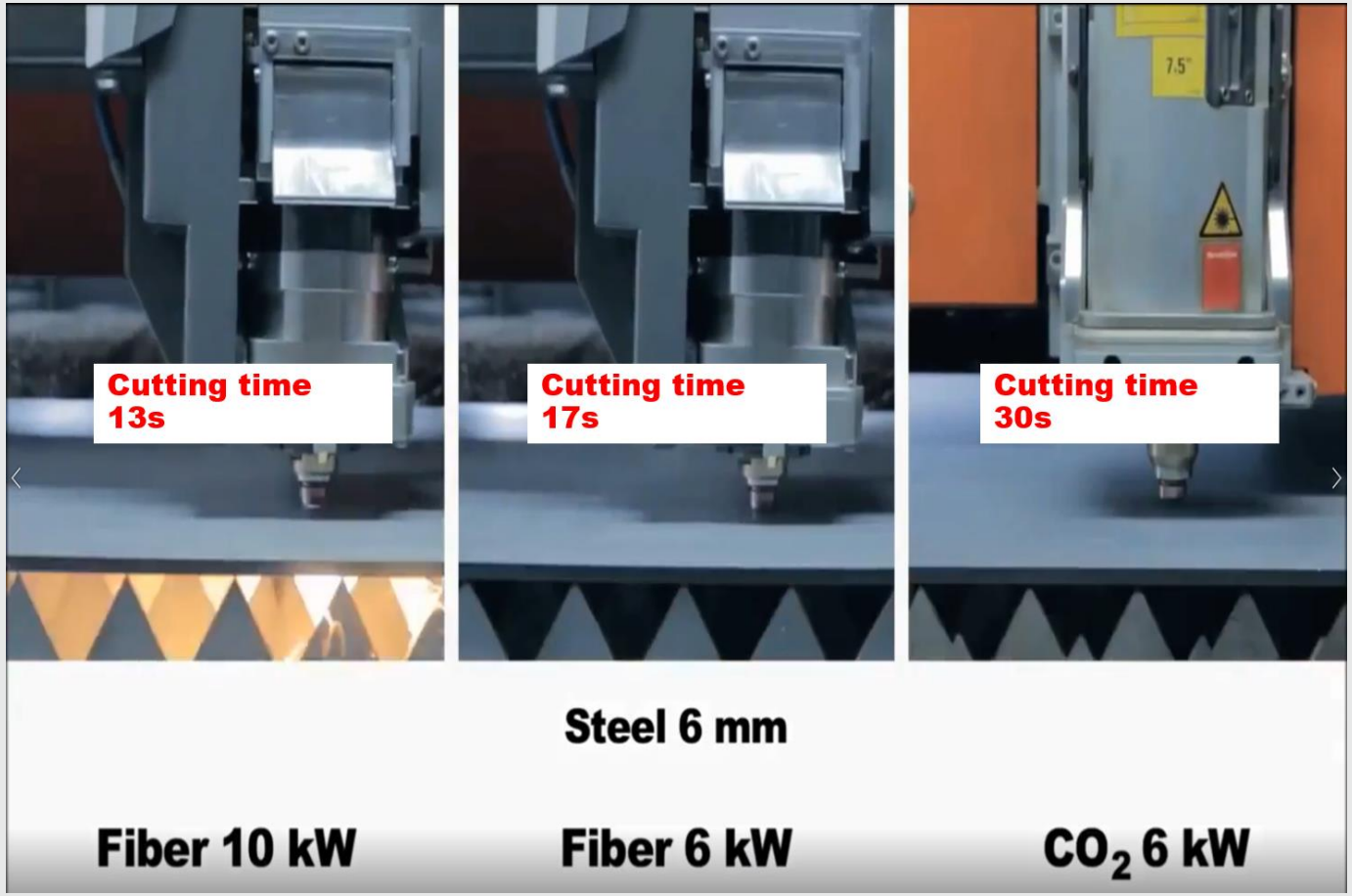

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SSAB LASER® - OPTIMIZED SURFACE QUALITY FOR LASER CUTTING

Wednesday, 10 May 2023

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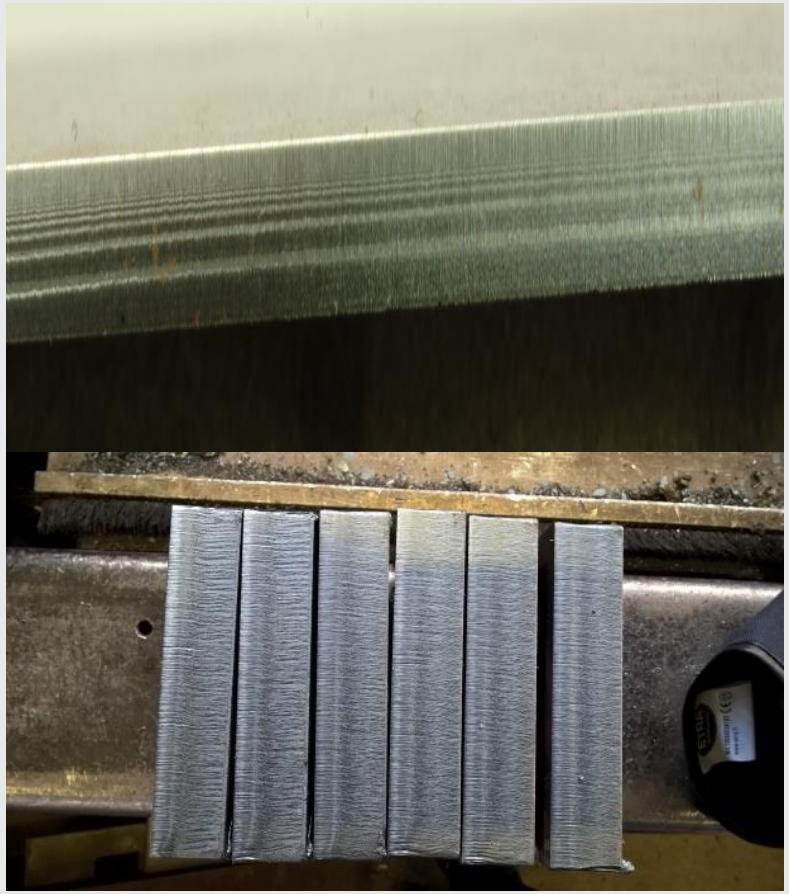
- The surface quality has great impact on cutting speed and cut edge quality
- Rigorous quality control ensures the best possible surface and cut edge quality for demanding components
- Always offers the optimal surface quality for high-quality laser cutting in all its products and delivery conditions



Silicon (Si)

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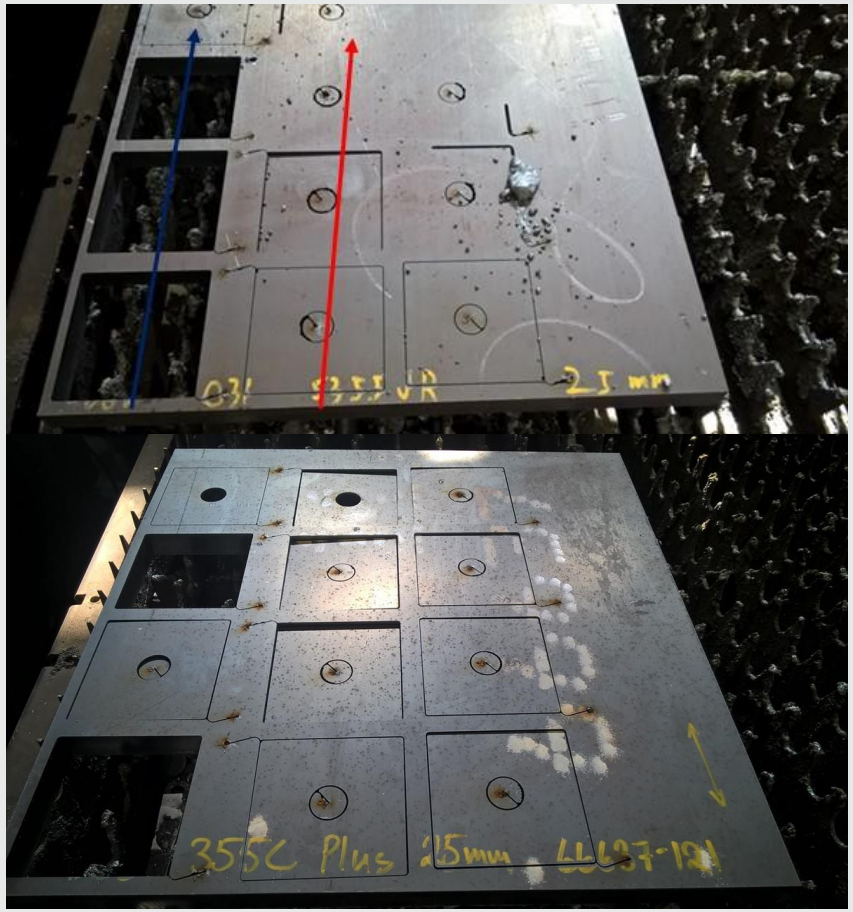
- Silicon increases viscosity and surface
- Low Si-content good for laser cutting quality
  - Higher Si-content can lead to a higher amount of dross
  - For example (EN 10025-2, t=25 mm):
    - High Si-content of 0.2% in S355JR
    - Low Si-content of 0.02% in SSAB Laser 355 C
    - While cold steel cutting is ok, after heating the material cutting is not possible



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SSAB LASER® - OPTIMIZED FOR BENDING

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SSAB Laser®

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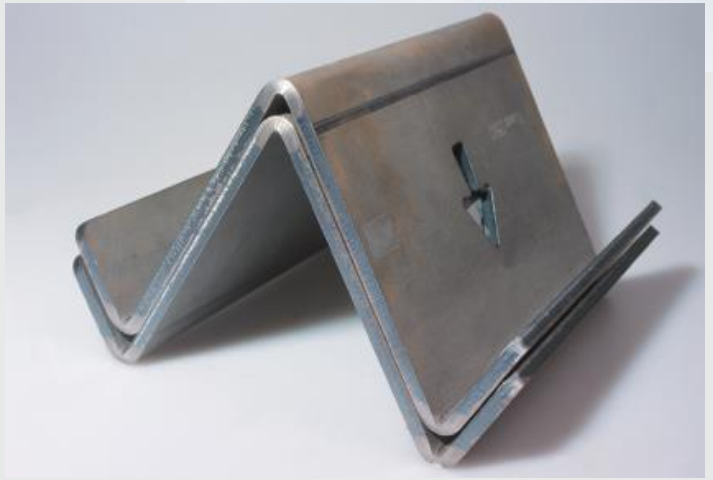
- Good mechanical properties, repeatable bendability in both directions
- Thanks to exceptionally isotropic mechanical properties of SSAB Laser® Plus
  - Bending angle is the same both in longitudinal and transversal directions
  - Freedom in positioning parts in nesting regardless of rolling direction
  - Easier nesting & better utilization of steel and less scrap in bending



Bendability of structural steel
Strip and plate products

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SSAB Laser 355MC Plus
Sheet
R = 0

SSAB Domex 355MC
Sheet
R = 4

EN 10149-2 / S355MC
Sheet
R = 8

Yield strength 355 N/mm^2

Thickness 8 mm

R = min inner bending radius

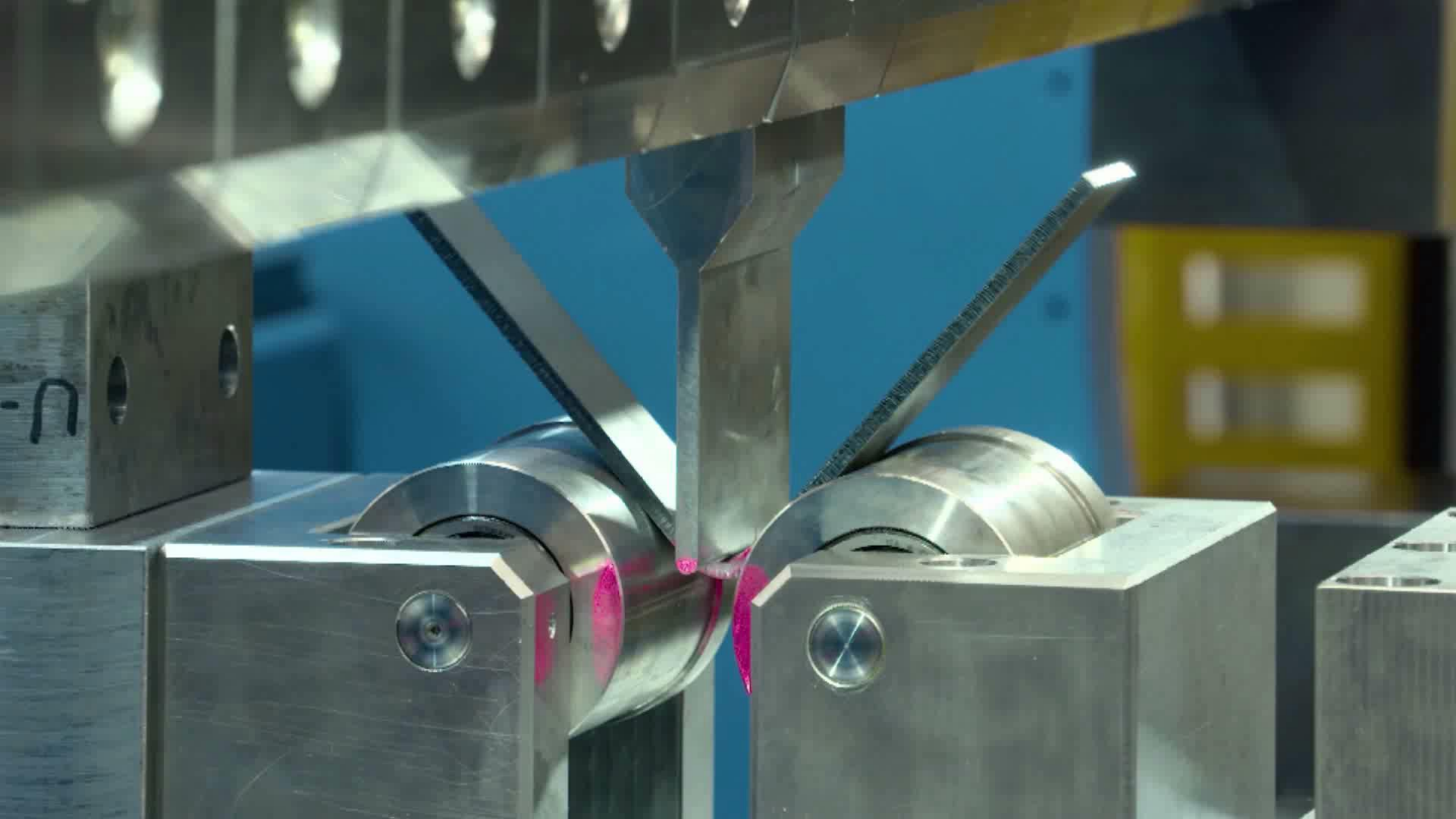
SSAB Laser 355ML Plus*
Plate
R = 8

SSAB Laser 355C
Plate
R = 12

SSAB Multisteel SN
Plate
R = 16

EN 10025-2 / S355J2C +N
Plate
R = 20

* SSAB Laser 355ML Plus fulfills EN 10025-4 requirements



SSAB Laser steel grades

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Hot rolled plate

SSAB Laser 250C
SSAB Laser 275C
SSAB Laser 355C
SSAB Laser 355ML Plus
SSAB Laser 420ML Plus
SSAB Laser 460 ML Plus

Hot rolled sheet

SSAB Laser 250C
SSAB Laser 275C
SSAB Laser 355C
SSAB Laser 355MC Plus
SSAB Laser 420MC Plus
SSAB Laser 460MC Plus
SSAB Laser 500MC Plus

Cold rolled sheet

SSAB Laser DC03

Some applications

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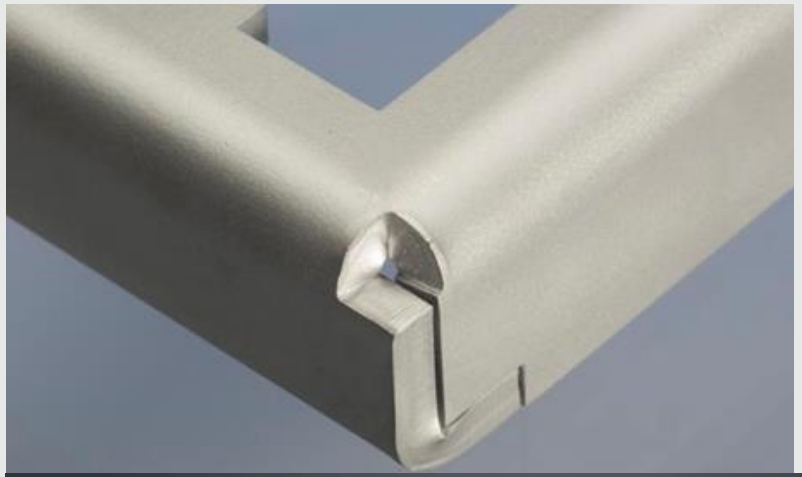

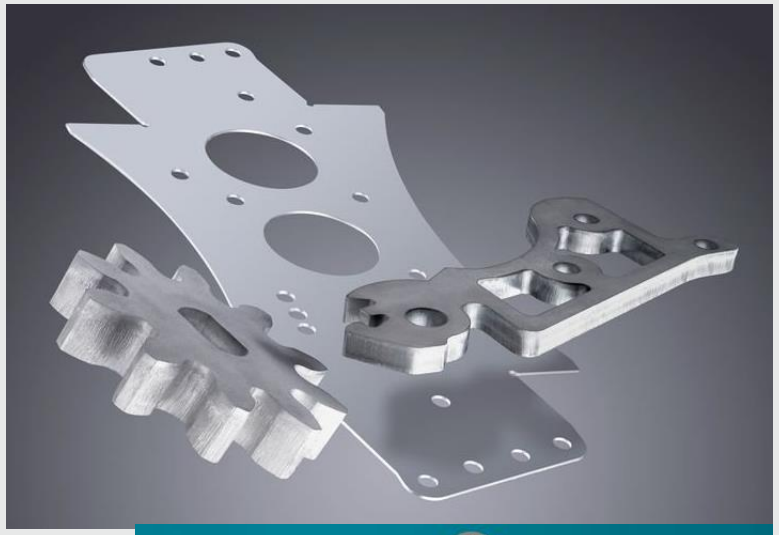

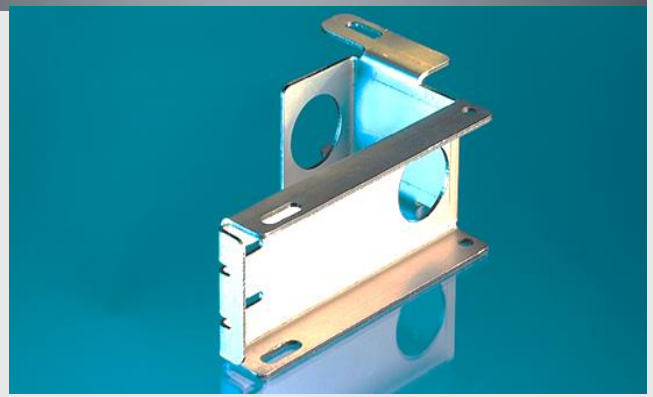

Laser cutting in the future

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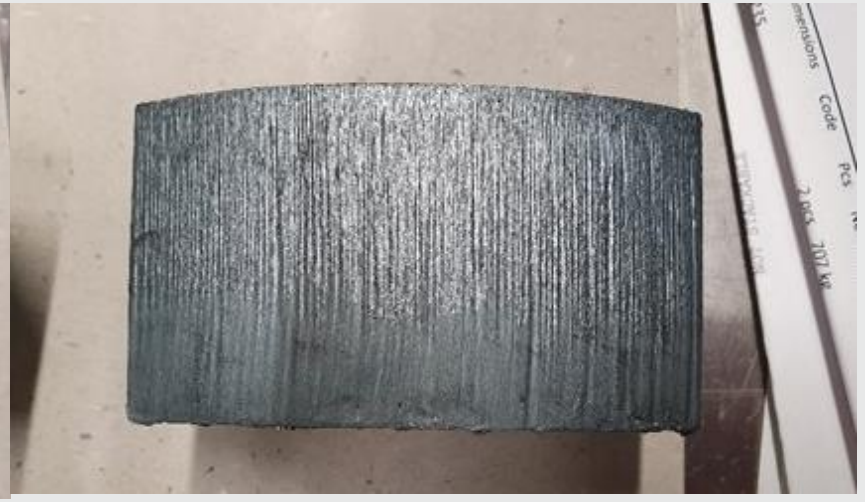

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THANK YOU FOR YOUR ATTENTION

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QUESTIONS?