

WHAT IS Coen Steel Domex MC

- ▶ Coen Steel Domex MC is your everyday steel grade that provides a little extra in every aspect.
- ▶ Supplied in S355, S420, S460 and S500
- ▶ New finer microstructure gives improved properties to overcome technical challenges in stamping, punching and press-forming that every day steel fails to deliver.
- ▶ Improve the productivity; less scrap, less rejections, lower costs



OPTIMIZED PRODUCTS

FOR DIFFERENT CUSTOMER DEMANDS

- ▶ Stamping
 - Punching and die-forming
 - ▶ Shearing
 - ▶ Roll forming
- ▶ Traditional sheet metal processing
 - Laser cutting and bending
 - 3mm Flatness

Coen Steel Domex MC



Coen Steel Domex MC



EXAMPLES OF DEMANDING APPLICATIONS CALLING FOR HIGH PERFORMANCE



Coen Steel DOMEX MC OFFERS

IMPROVED
SHEAR-CUT
QUALITY

IMPROVED
EDGE
DUCTILITY

OUTSTANDING
IMPACT
TOUGHNESS
min 40J/-60°C

PERFORMANC
E
IN SHEAR
CUTTING

PERFORMANCE
IN PRESS-
FORMING

MINIMUM
YIELD
STRENGTH
355-500 MPa

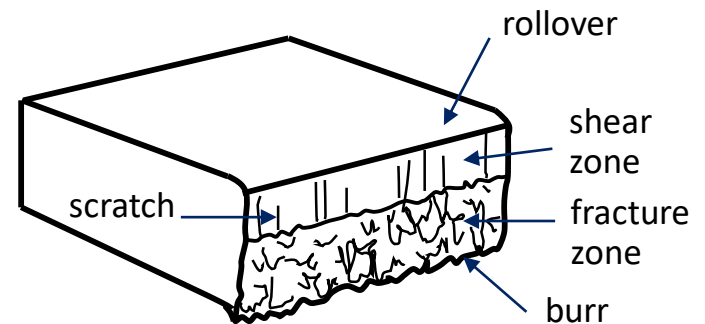
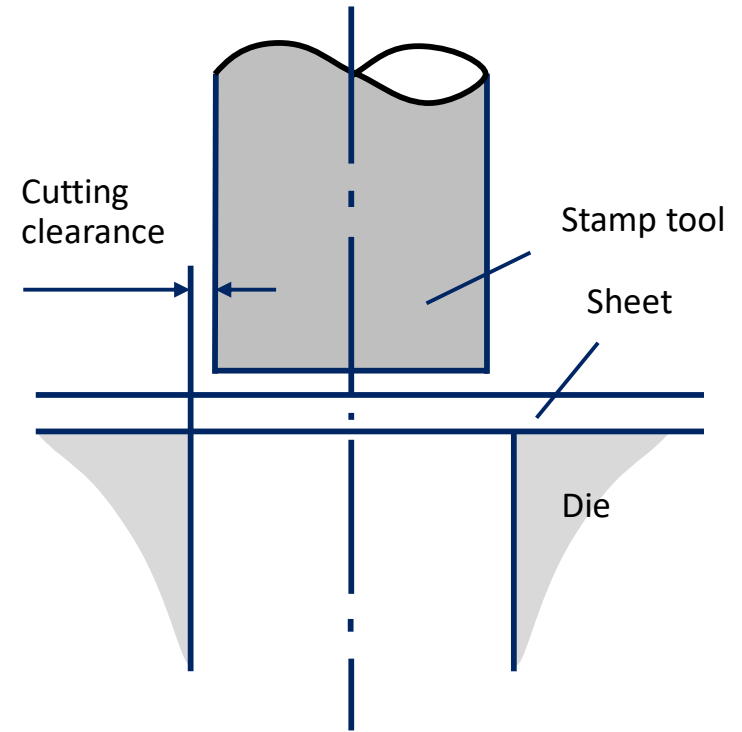
CHALLENGES IN BLANKING AND PUNCHING

- ▶ Coen Steel Domex MC can face the challenges of serial production in
 - **Die-forming**
 - **Fine-blanking**
 - **Punching**
 - **Stamping**
 - **Bending**
- ▶ Varying tooling conditions and stable mechanically cut edge quality.



ROBUST BEHAVIOR

- ▶ Cutting clearance is one of the most important parameters but tends to vary in serial production
- ▶ Thanks to the finer microstructure Coen Steel Domex MC behaves extremely robust under varying cutting clearances and tool wearing
 - This means more stable quality of the cut edge and more robust process
 - This has direct impact on the cut edge quality and tool maintenance costs



A CUTTING EDGE MATERIAL

- ▶ Coen Steel Domex MC has a much finer cut edge even with higher cutting clearance
 - longer shear (polished) zone
 - finer fractured zone
- ▶ Longer shear zone resists crack growth in forming and under dynamic loading

Re \geq 355 Mpa

8,7% cutting clearance

Re \geq 420 MPa

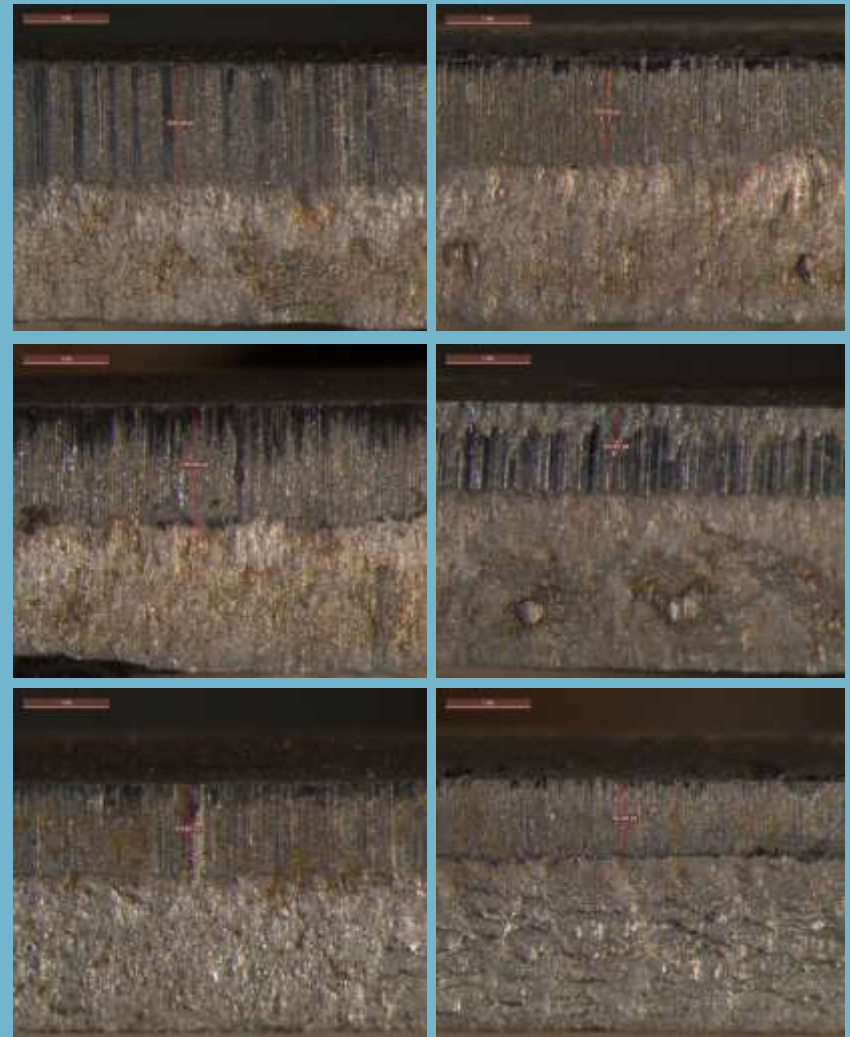
8,7% Cutting clearance

Re \geq 420 MPa

16,0% Cutting clearance

3mm Coen Steel DOMEX MC

STANDARD



EXCELLENT SHEAR-CUT PERFORMANCE

- ▶ Coen Steel Domex MC has high tolerance for worn tools.
- ▶ When punching tool edges start to become dull and tool clearances are growing, Coen Steel Domex MC keeps performing.
- ▶ Make the production more cost-effective.



SHEAR-CUT & FORMING PROPERTIES

	Forming	Effect	Compared to standard
FORMING	Edge ductility	↑	Significant improvement
	Stretch flanging	↑	Significant improvement
	Bending	➔	Min bend radius $0 \cdot \text{Thickness}$ in both direction
	Roll-forming	➔	Min bend radius $0 \cdot \text{Thickness}$ in both direction
	Drawing (Limit drawing ration LDR)	➔	Improvement, smaller ear formation and less scrap
SHEAR-CUTTING	Punching, punching, piercing	↑	Better quality
	Slitting	↑	Better quality
	Fine-Blanking	➔	Better quality, restricted applications

OUTSTANDING IMPACT TOUGHNESS

- ▶ Coen Steel Domex MC steels have improved impact toughness that is tested at -60°C
- ▶ Guaranteed min 40J / -60°C

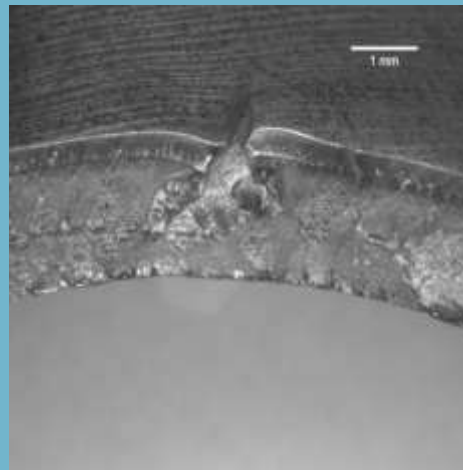
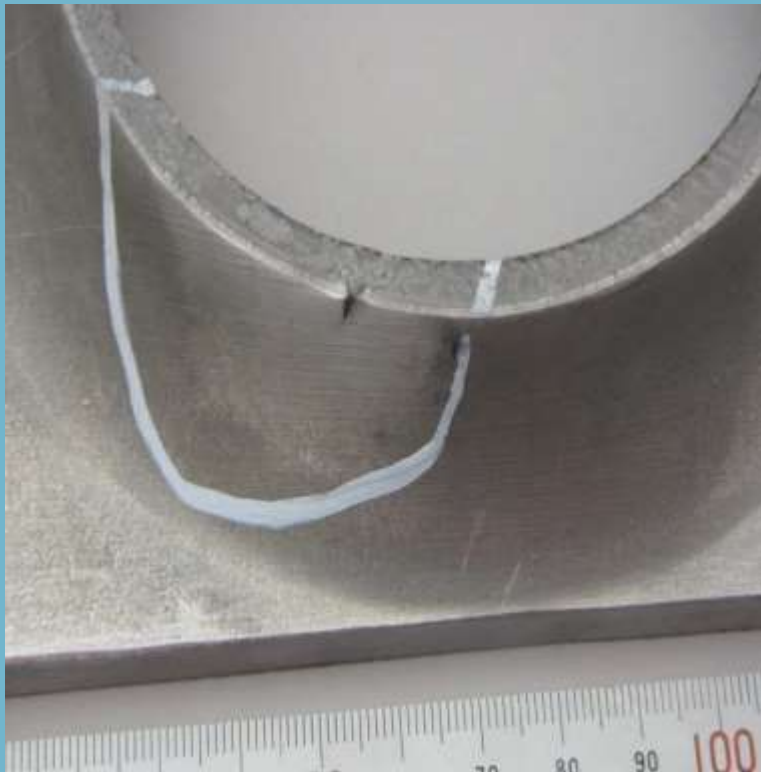


MAKES THE SCRAP BIN LIGHT

- ▶ Bend and press without cracks
- ▶ Coen Steel Domex MC has superior local formability.
- ▶ Complex bending and forming can be performed without cracks, improving yield and quality of the final product drastically.



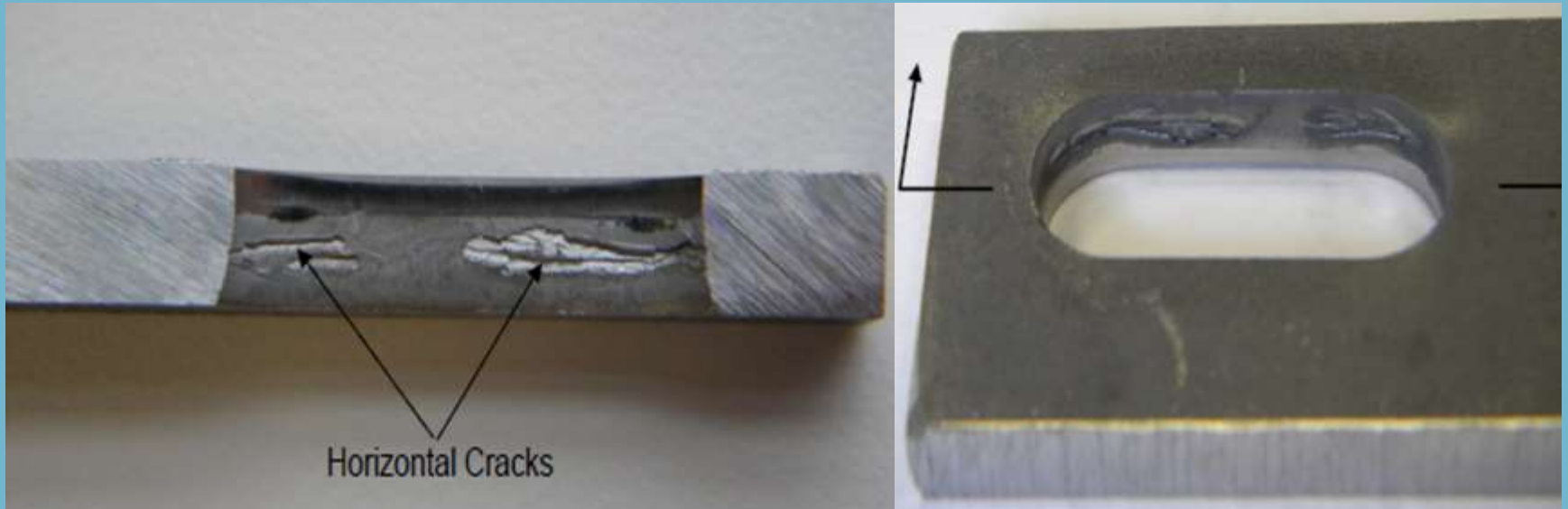
WHAT CAN BE SOLVED?



- ▶ Edge cracking during forming

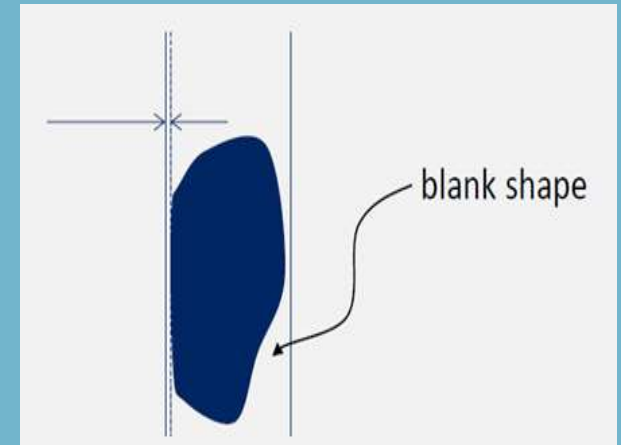
WHAT CAN BE SOLVED?

- ▶ Micro cracks during punching



WHAT CAN BE SOLVED?

- ▶ Lamellar splitting in shear cutting
- ▶ Problems with too small cut-away in punching



WHAT CAN BE SOLVED?

- ▶ Quality improvement & Less grinding as reworking

