



POSITIVE EFFECT OF EDGE ROUNDING AND OXIDE REMOVAL

WITH REGARD TO PAINT ADHERENCE
ON SHEET METAL EDGES

WITH REGARD TO PEEL ADHESION
ON SHEET METAL SURFACES

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LISSMAC

METAL PROCESSING



POSITIVE EFFECT OF EDGE ROUNDING
AND OXIDE REMOVAL WITH REGARD
TO PAINT ADHERENCE ON SHEET
METAL EDGES

TEST CRITERIA

Procedure: Test compares 1/4" thick powder coated laser cut parts
1. parts that were left untreated
2. parts where oxide film was removed with a LISSMAC SBM-M B2
3. parts where oxide film was removed with a LISSMAC SBM-M B2
AND edges were rounded with a LISSMAC SBM-M S2

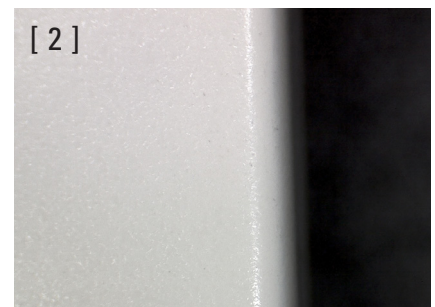
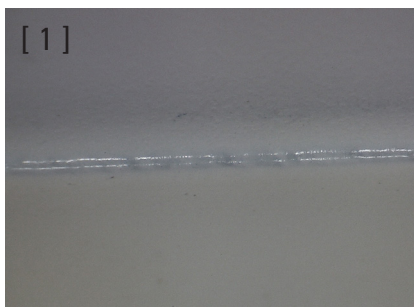
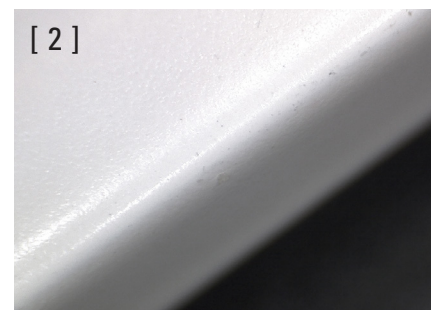
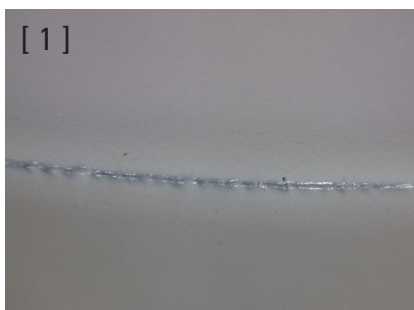
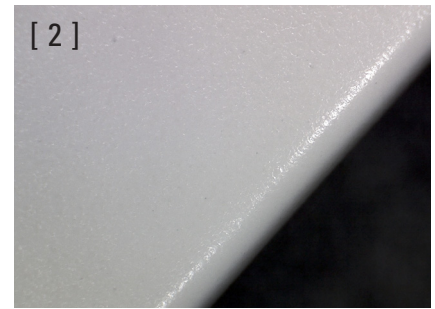
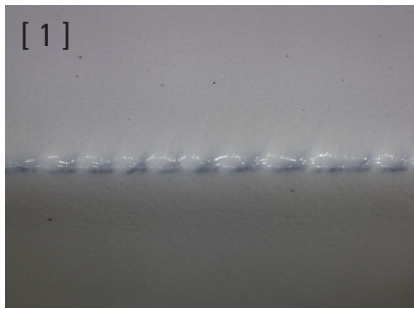
Material thickness: 1/4"
Steel sheet: S235 mild steel
Paint: Powder coat RAL 9010
Paint layer thickness: approx. 70 micron
Cured paint/powder coat

→ Results after powder coating

NO PROCESSING,
PARTS LEFT UNTREATED

OXIDE FILM WAS REMOVED WITH
A LISSMAC SBM-M B2

OXIDE FILM WAS REMOVED WITH
A LISSMAC SBM-M B2 AND
EDGES WERE ROUNDED WITH A
LISSMAC SBM-M S2



RESULTS

Oxide removal results in:

- optimal peel adhesion on the cut surface of laser cut parts
- significantly improved paint adherence on the edge of laser cut parts [1]

Additional rounding of edges yields:

- cohesive paint/powder layer on the cutting edge with consistent coat thickness [2]

Benefits:

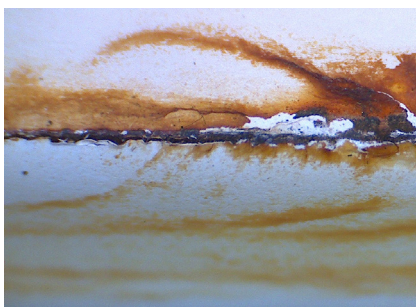
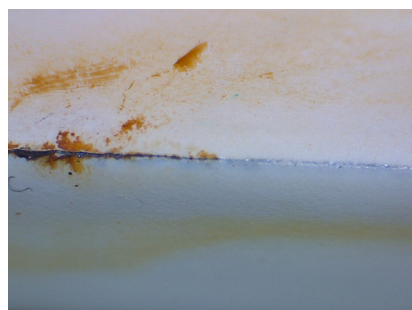
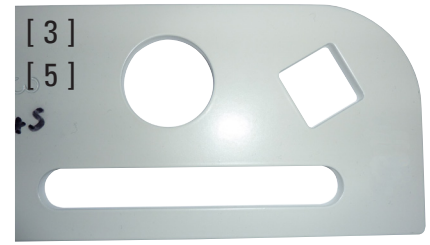
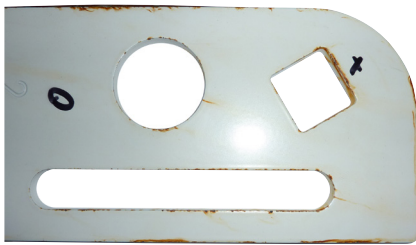
- dramatically improved paint/powder coat adherence throughout and especially along the edges
- no edge rust [3]
- mechanical forces cause less damage to the parts surface and edges [4]
- added value by significantly enhanced appearance of the parts over a long period of time [5]

→ Results after salt spray test

NO PROCESSING,
PARTS LEFT UNTREATED

OXIDE FILM WAS REMOVED WITH
A LISSMAC SBM-M B2

OXIDE FILM WAS REMOVED WITH
A LISSMAC SBM-M B2 AND
EDGES WERE ROUNDED WITH A
LISSMAC SBM-M S2



POSITIVE EFFECT OF EDGE ROUNDING AND OXIDE REMOVAL WITH REGARD TO PEEL ADHESION ON SHEET METAL SURFACES

RESULTS

- removing oxide film and rounding edges increases the adherence of liquid paint, e-coat and powder coat to the steel material and significantly reduces the area and risk of corrosion
- the combination of both processes (removing oxide film plus edge rounding) yields the best protection against rust [6]

→ Benefits:

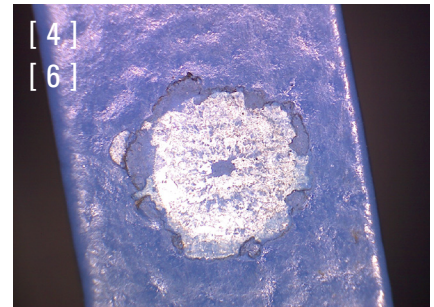
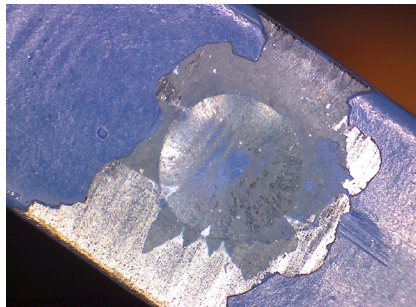
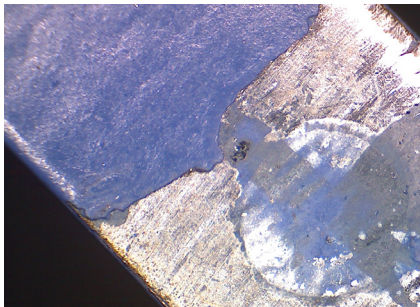
- much smaller area of damage
- reduced rust progression around the damaged area
- lower repair costs

NO PROCESSING, PARTS LEFT UNTREATED

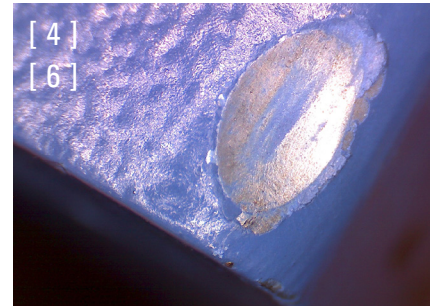
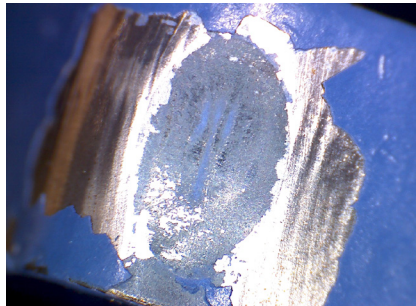
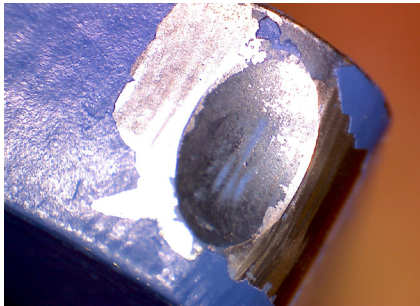
NO PROCESSING, PARTS LEFT UNTREATED

OXIDE FILM WAS REMOVED

SURFACE



RADIUS

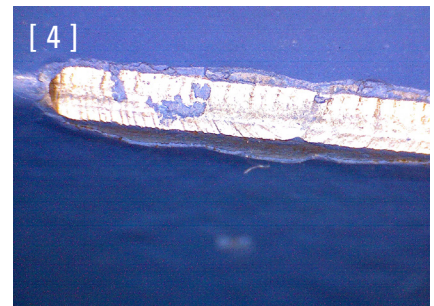
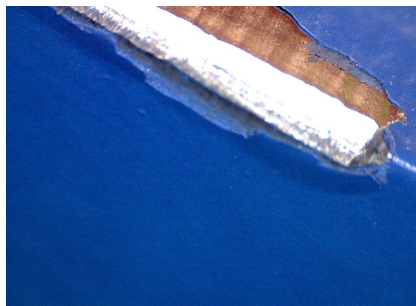


NO PROCESSING, PARTS LEFT UNTREATED

NO PROCESSING, PARTS LEFT UNTREATED

OXIDE FILM WAS REMOVED AND EDGES WERE ROUNDED

EDGE



TEST CRITERIA

Damage by mechanical force/impact

Process: - Ball impact on surface or radius of the material
 - Cylinder pin impact to the edge of the material

Defined impact force of the ball or cylinder pin

Material thickness: 1/4"
 Steel sheet: S235 mild steel
 Paint: Structured coating
 2 component RAL 5000
 Paint layer thickness: approx. 70 - 80 micron
 Cured paint/powder coat

LISSMAC / 03.2011