LasGAM
Piezo-controlled Gas Mixing System

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November 6, 2024

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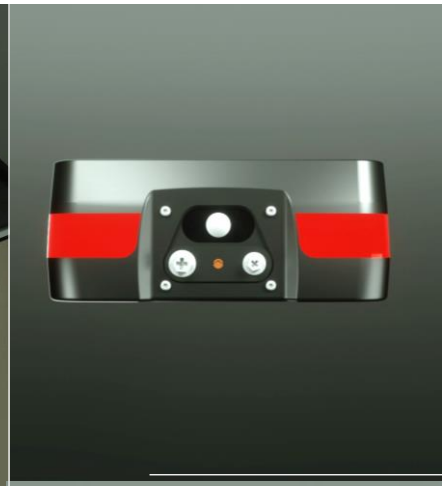
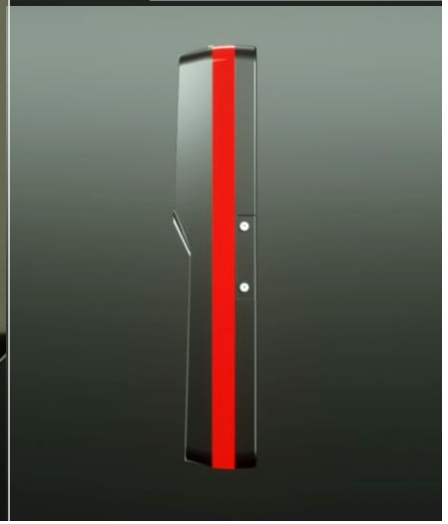
LasGAM - Piezo-controlled Gas Mixing System

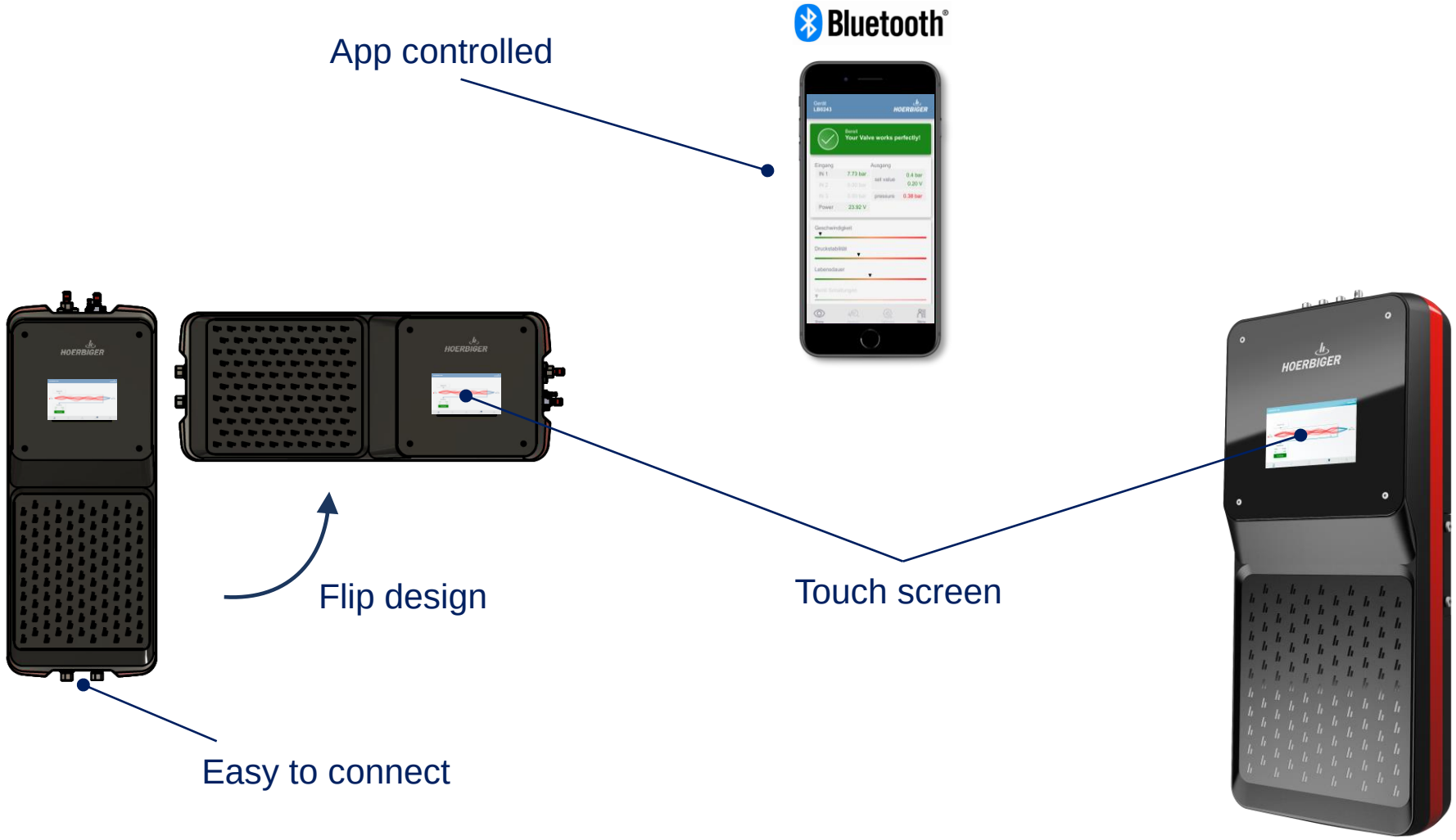
Your gamechanger for laser cutting machines





LasGAM - Piezo-controlled Gas Mixing System

Simplicity of installation and operation

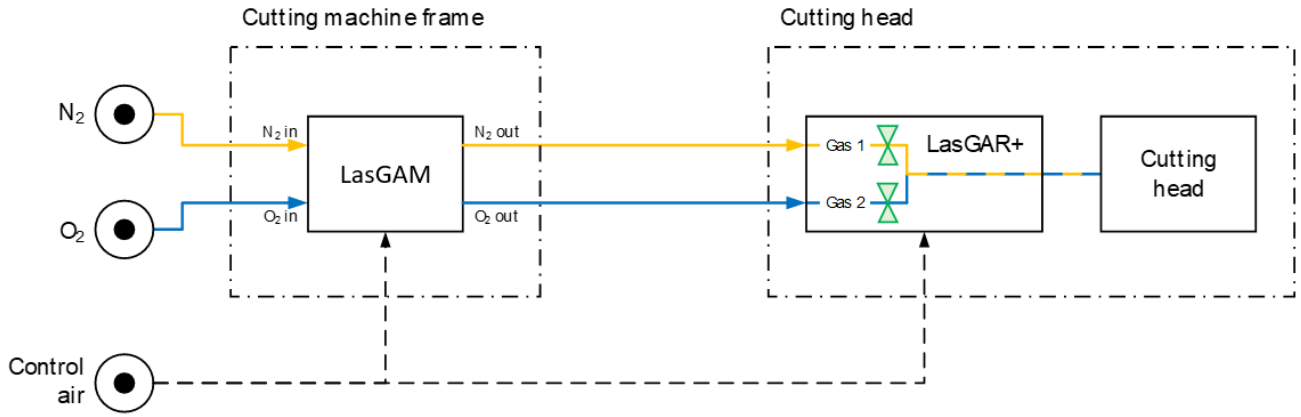


LasGAM - Piezo-controlled Gas Mixing System

Schematic system design

Integrated Version

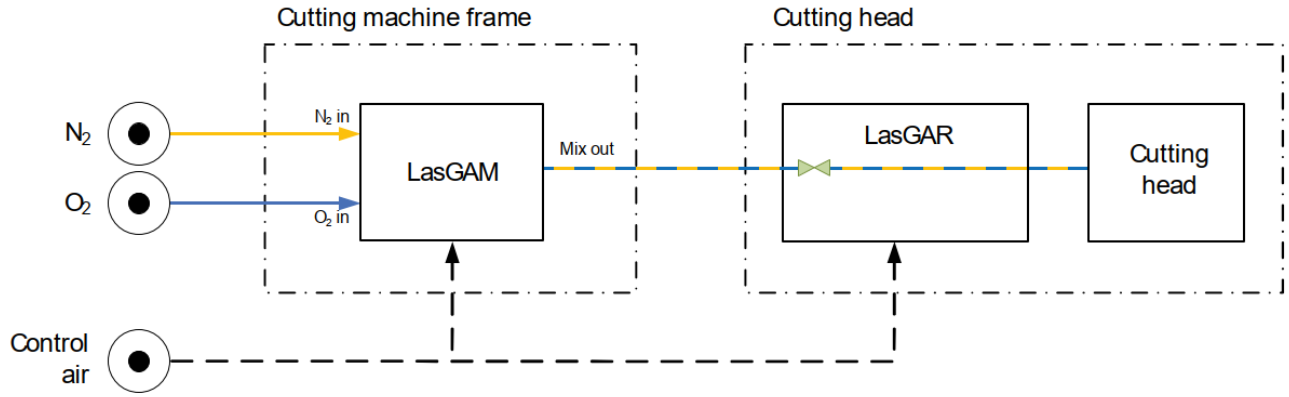
- 2 gas inputs
- 2 gas outputs
- mixing performed at proportional valve LasGAR
- integrated into machine control by Ethercat or Profinet
- optional control by touch screen or Bluetooth app



Standalone Version

- 2 gas inputs
- 1 gas output
- mixing performed in LasGAM itself
- controlled by touch screen or Bluetooth app
- optional integration into machine control by Ethercat or Profinet

→ retrofit solution



LasGAM - Piezo-controlled Gas Mixing System

Features

Up to 25 bar output pressure

2500 l/min flow (6bar to 0bar)
9000 l/min flow (40bar to 0bar)

24VDC / 20W power supply

0% - 20%
Oxygen ratio in the mixture

100% Nitrogen mode

EtherCAT input & output

100% Oxygen mode

Up to 40 bar input pressure

LasGAM - Piezo-controlled Gas Mixing System

Technical data

MECHANICAL PROPERTIES

Length	785 mm
Width	320 mm
Height	150 mm
Weight	20 kg

PNEUMATIC CONNECTIONS

Nitrogen input (Integrated & Standalone)	G 1/2“ 40 bar MAX
Nitrogen output (Integrated)	G 1/2“
Oxygen input (Integrated & Standalone)	G 3/8“ 25 bar MAX
Oxygen output (Integrated)	G 1/2“
Pilot air input	G 1/8“ 6 … 8 bar
Mixgas output (Standalone)	**G 1/2“ Oxygen input minus 1 bar**

ELECTRICAL CONNECTIONS

Power supply	24 V DC 20 W M12 A-coded 4-pin female
Bus connection	EtherCAT (IN & OUT) M12 D-coded 4-pin female

MIXING PERFORMANCE

Adjustable oxygen ratio	0 … 20 % in mixing mode
Repeatability	typ. ±0.007 % abs
Control accuracy	typ. ±0.05 % abs
Maximum flow rate mixgas	2.500 l/min (6 bar to 0 bar)
Pressure mixed gas	O_2 input minus 1 bar

MODES (100% NITROGEN, 100% OXYGEN)

Flow rate (Nitrogen)	No limit
Output pressure (Nitrogen)	Input pressure nitrogen
Flow rate (Oxygen)	No limit
Output pressure (Oxygen)	Input pressure oxygen

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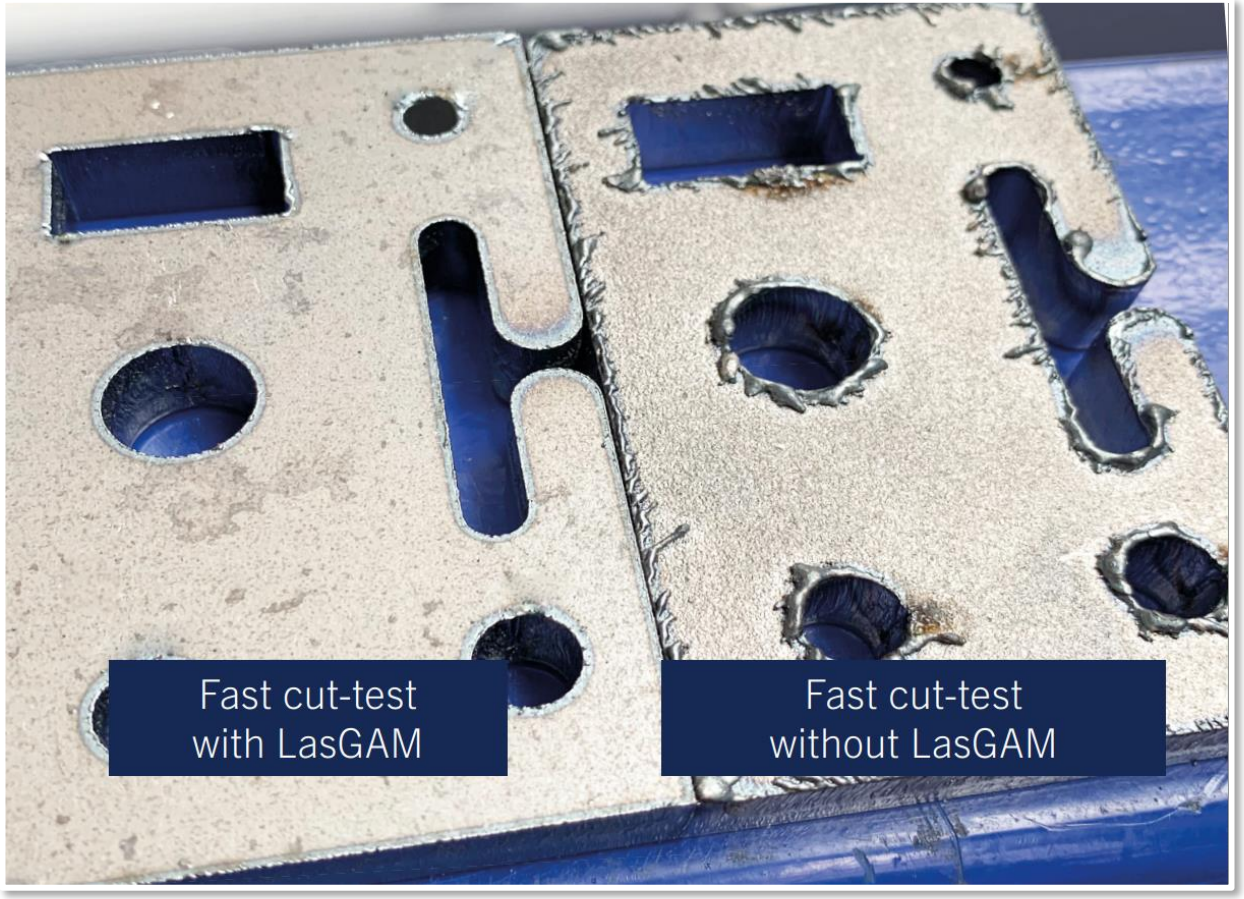
Clean cut with an optimum of quality, gas consumption and speed



LasGAM - Piezo-controlled Gas Mixing System

Faster, more precise with low energy consumption

+50 %	-55 %	<1 sec
Productivity compared to cutting without gas mixing system	Cutting gas consumption compared to cutting without gas mixing system	Mixing gas ratio of 0-20% O_2 achieved

Your benefits at a glance

Benefits	Advantages	Features
You increase your productivity by up to 50%	Ultrafast change of the mixing ratio	Tankless design
You reduce your cutting gas consumption by up to 55%		
You can achieve a mixing ratio between 0 - 20% O_2 in less than 1 sec.		
You get reliable cut quality through uninterrupted status monitoring	Mobile function monitoring	Bluetooth connection with app
You get reliable cutting quality through highest repeatability	Stable system (mechanical, pneumatic)	Hose-free design

“compact and simple installation at the laser cutting machine is one of the most important benefit for me”*

“easier removal of the components, due to a larger cutting gap!”*

“integration in the machine control is absolutely amazing”*

*customer feedback

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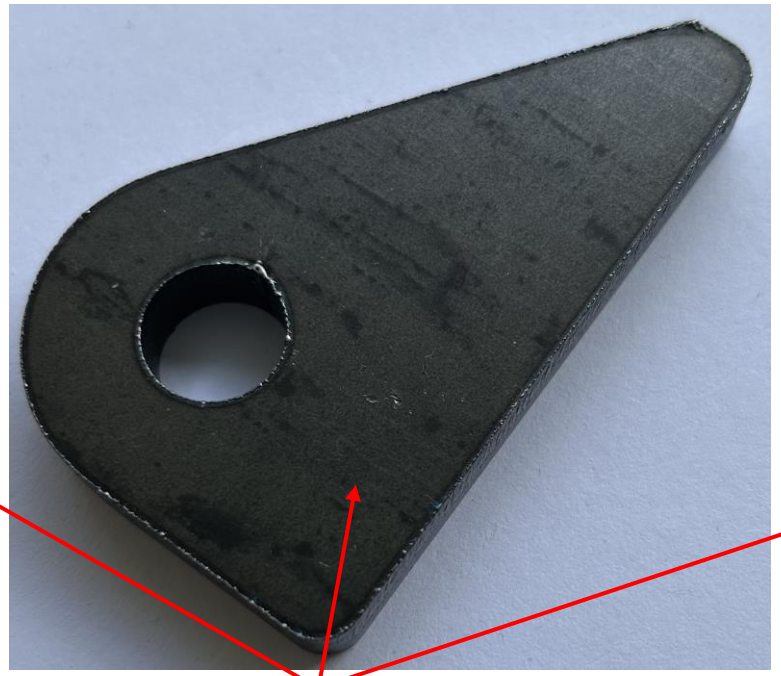
Cutting samples – mild steel



MIX GAS

t = 10 mm mild steel

v = 4800 mm/min

p = 8 bar

10 kW

Hard oxide layer

SAME PART

Oxygen 2200 mm/min

Nitrogen 3200 mm/min

10 kW

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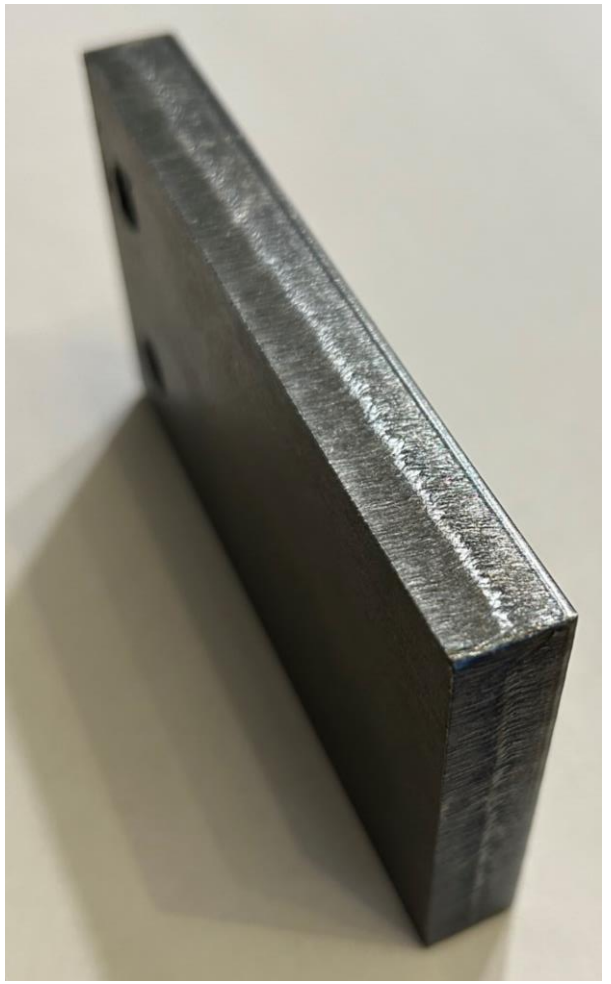
Cutting samples – mild steel



MIX GAS

t = 12 mm mild steel

v = 4500 mm/min

p = 10 bar

15 kW

Hard oxide layer

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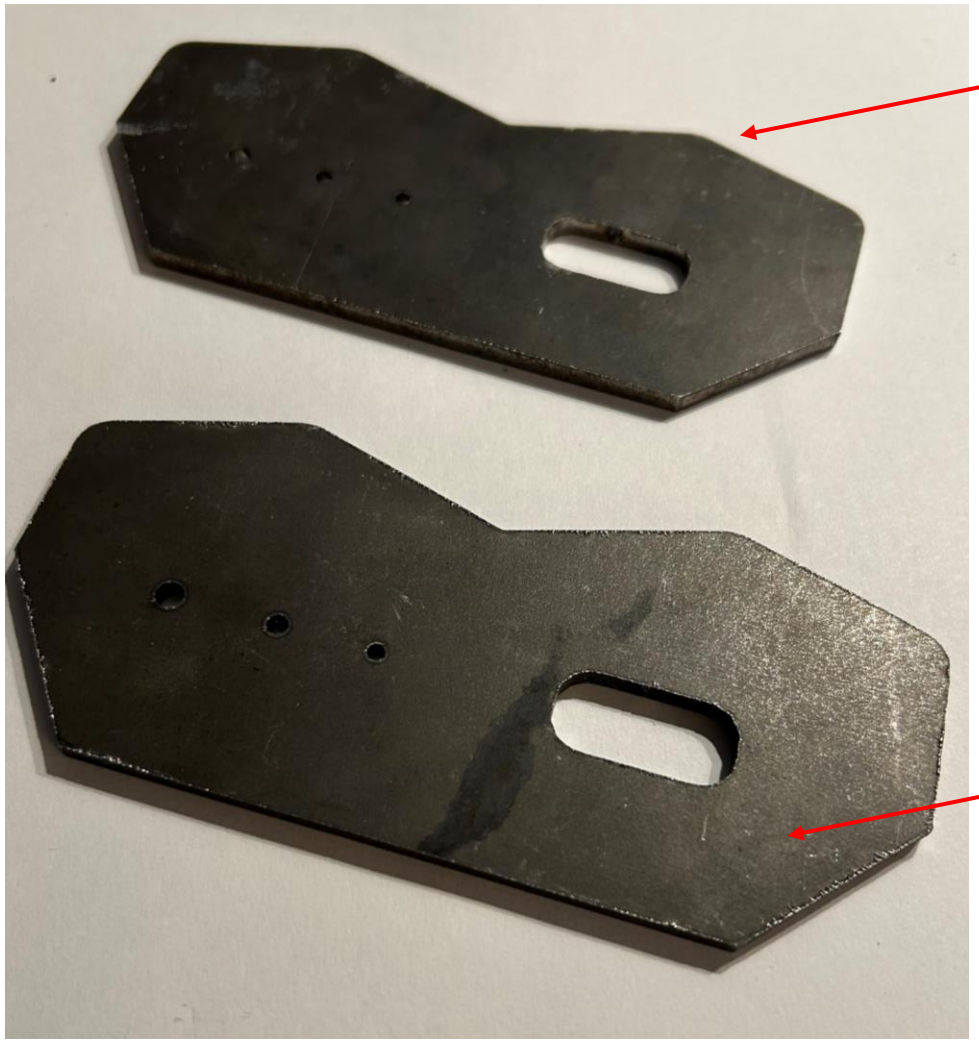
Cutting samples – mild steel



NITROGEN

t = 4 mm mild steel

v = 20000 mm/min

p = 14 bar

15 kW

MIX GAS

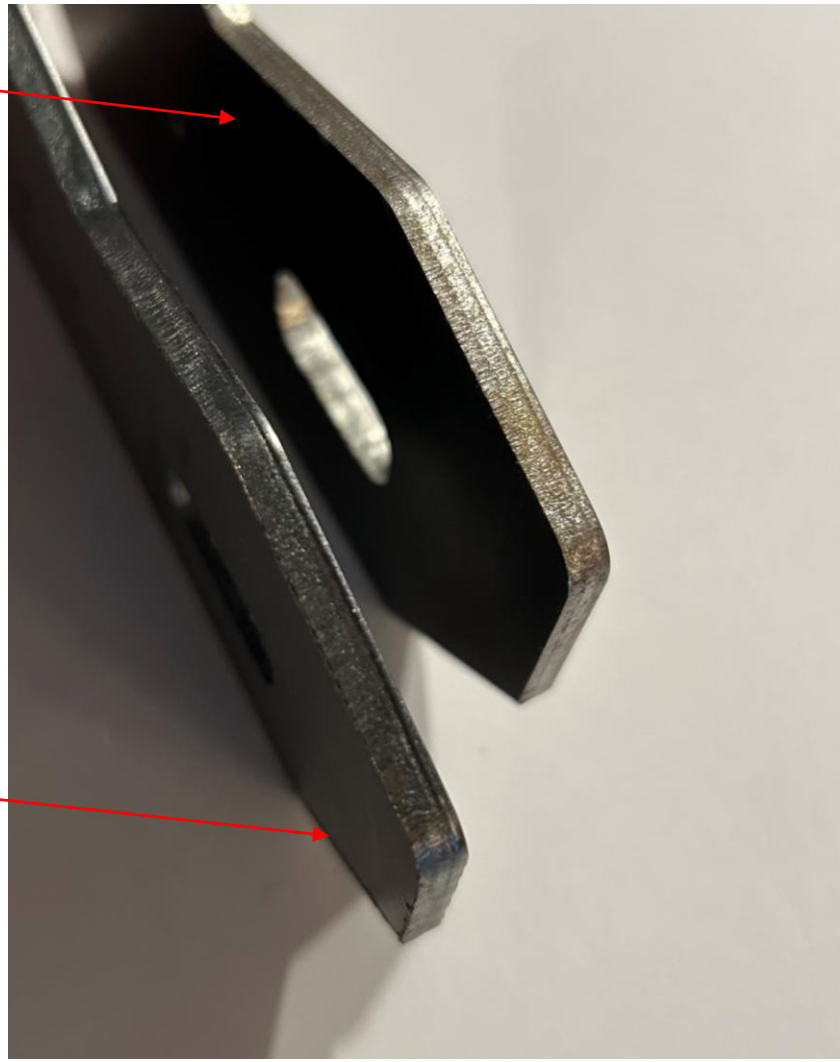
t = 4 mm mild steel

v = 22000 mm/min

p = 10 bar

15 kW

Hard oxide layer



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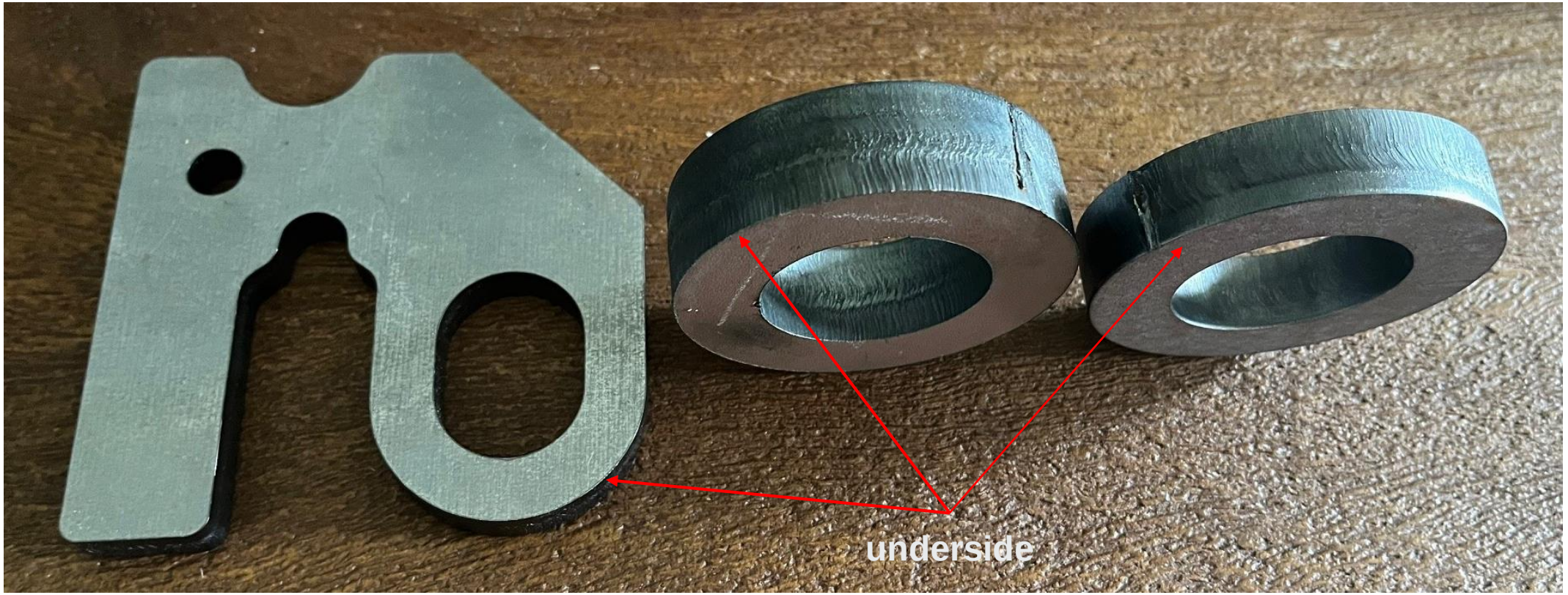
left:	mild steel	t = 10 mm; p = 7 bar, v = 4800 mm/min (10 kW) MIX GAS
middle:	hardox	t = 20 mm; p = 12 bar, v = 5500 mm/min (20 kW) MIX GAS
right:	hardox	t = 15 mm; p = 10 bar, v = 2900 mm/min (20 kW) MIX GAS



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LasGAM - Piezo-controlled Gas Mixing System

left:	mild steel	t = 10 mm; p = 7 bar, v = 4800 mm/min (10 kW) MIX GAS
middle:	hardox	t = 20 mm; p = 12 bar, v = 5500 mm/min (20 kW) MIX GAS
right:	hardox	t = 15 mm; p = 10 bar, v = 2900 mm/min (20 kW) MIX GAS

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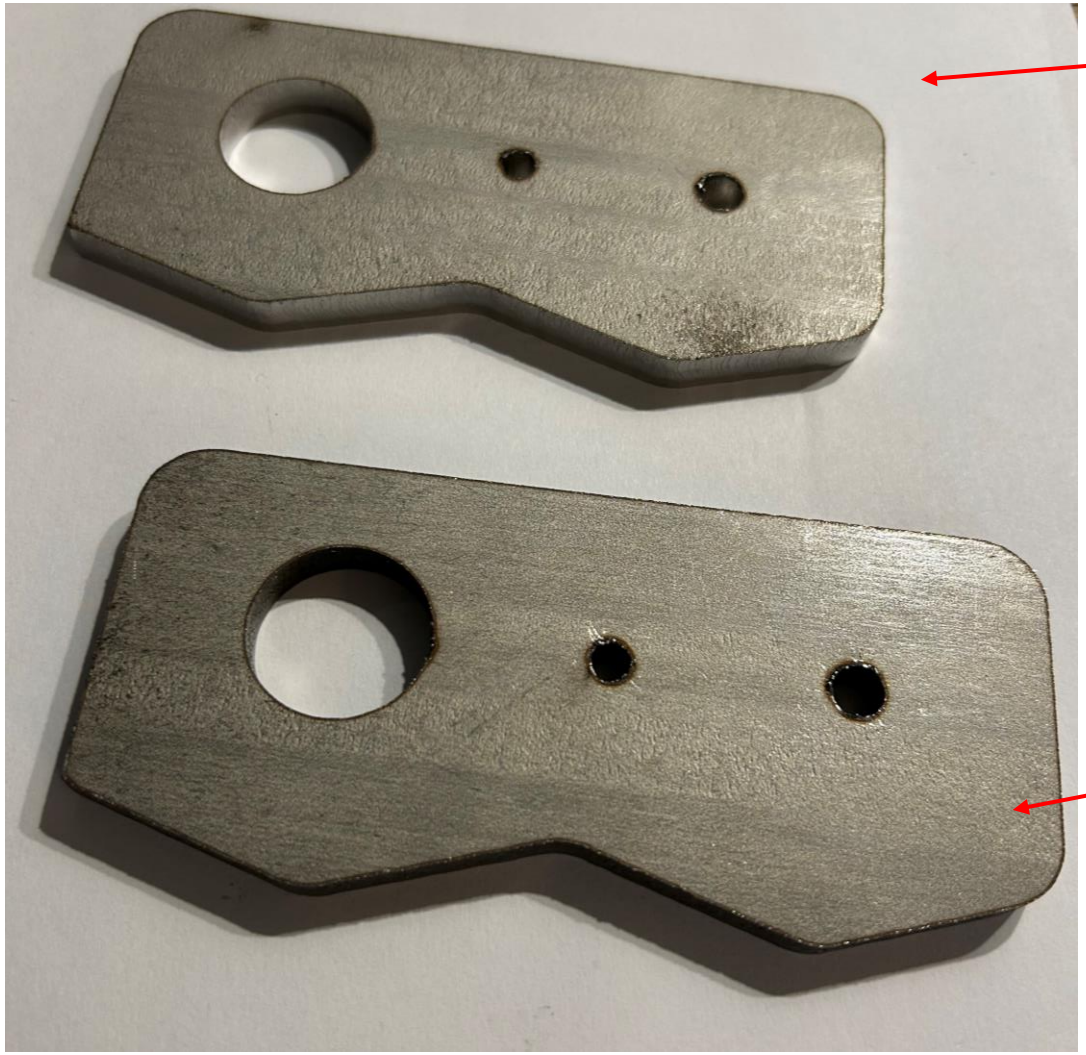
Cutting samples – stainless steel



NITROGEN

t = 8 mm stainless

v = 9000 mm/min

p = 14 bar

15 kW

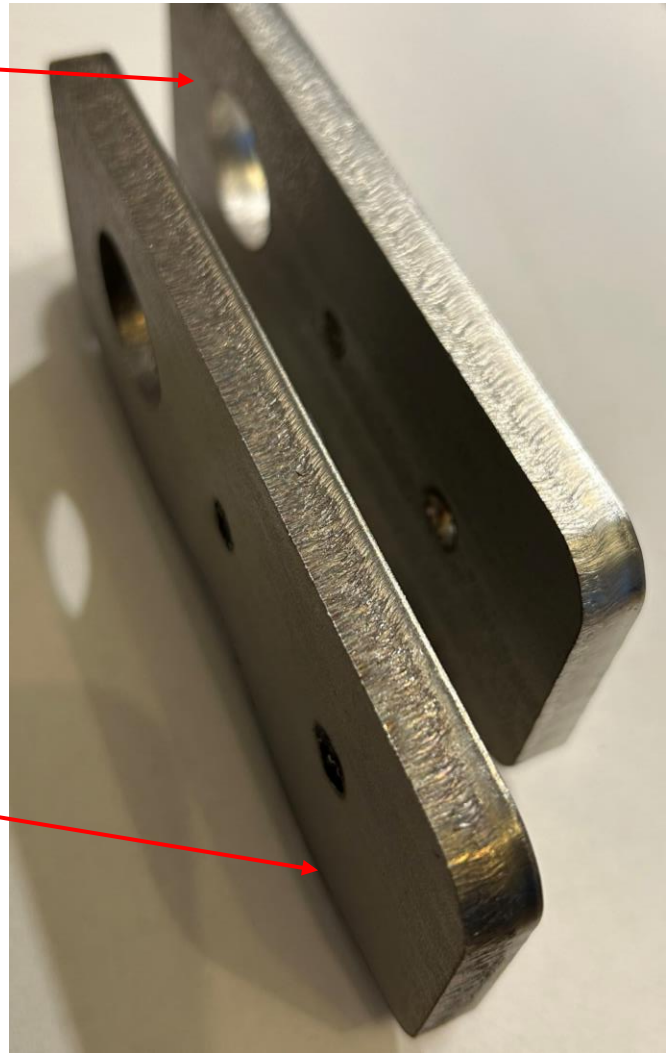
MIX GAS

t = 8 mm stainless

v = 10000 mm/min

p = 8 bar

15 kW



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Cutting samples – stainless steel

NITROGEN

t = 1,5 mm stainless

v = 52000 mm/min

p = 10 bar

15 kW

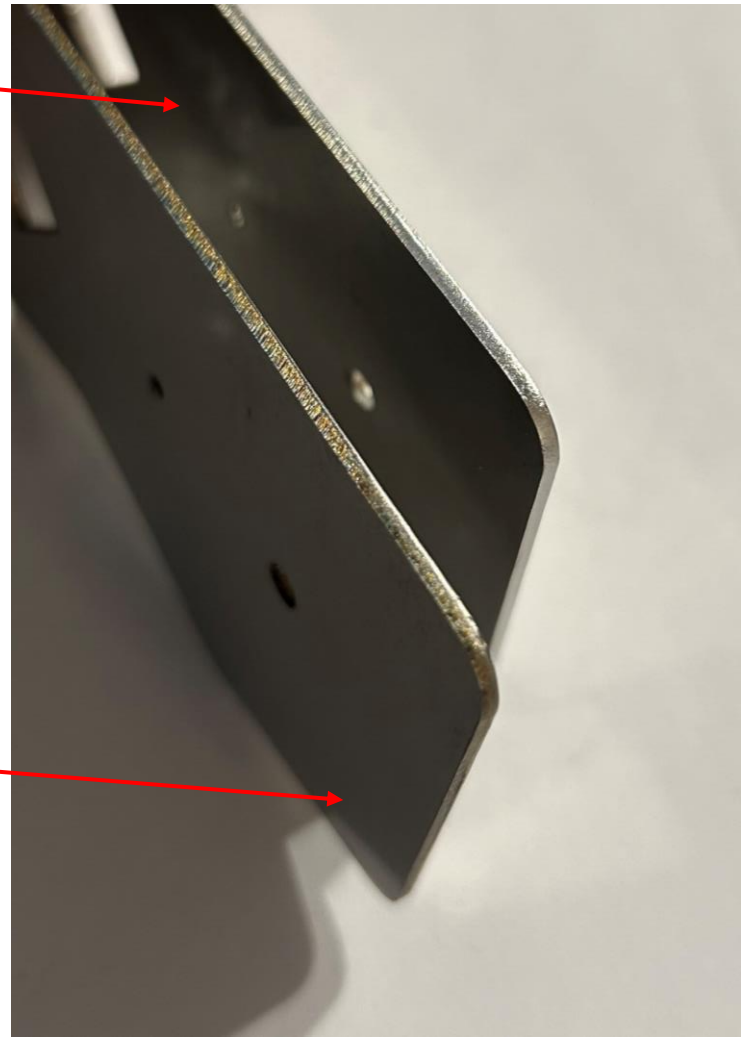
MIX GAS

t = 1,5 mm stainless

v = 53000 mm/min

p = 6 bar

15 kW



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LasGAM - Piezo-controlled Gas Mixing System

Cutting samples – aluminium

MIX GAS

t = 8 mm aluminium

v = 6000 mm/min

p = 10 bar

15 kW

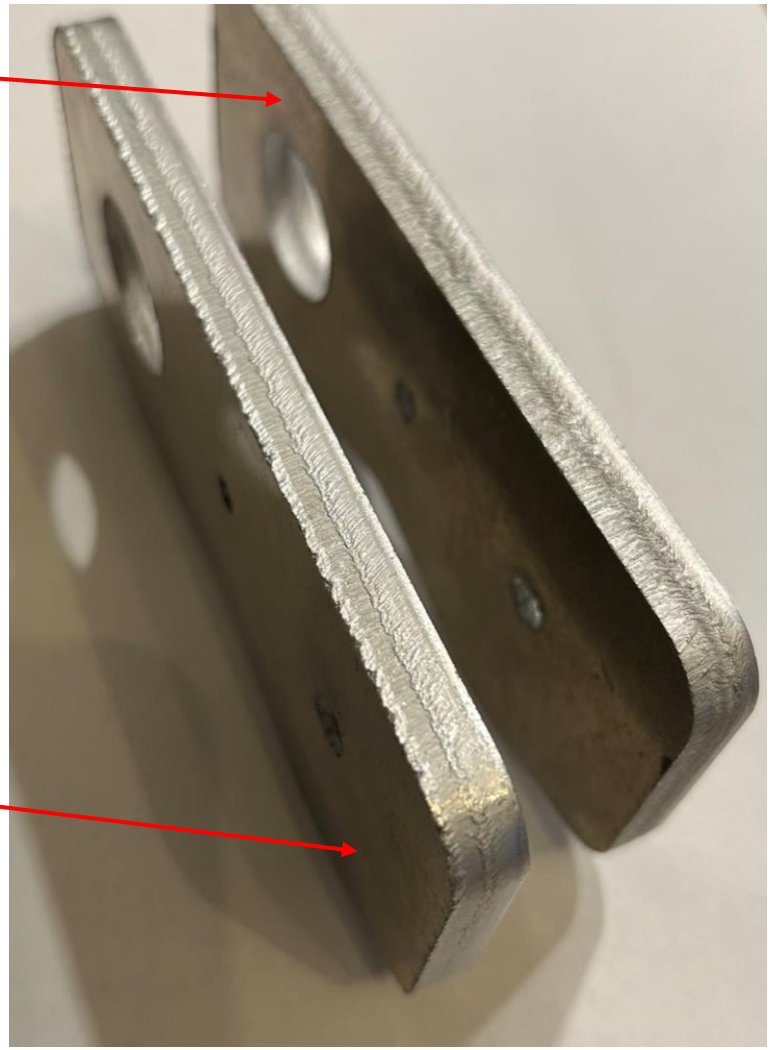
NITROGEN

t = 8 mm aluminum

v = 6000 mm/min

p = 15 bar

15 kW



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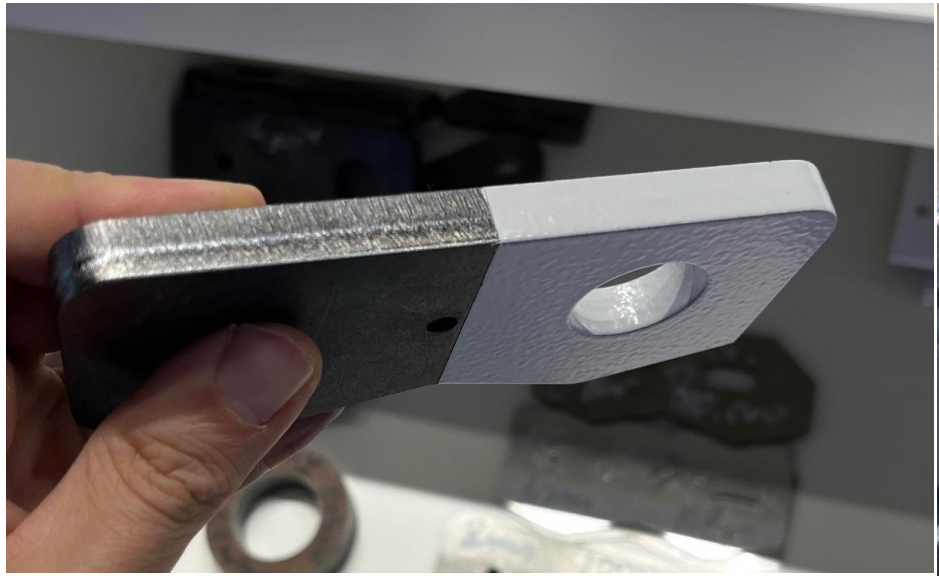
Powder coating & welding samples



No negative impact on powder coating & welding known!

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