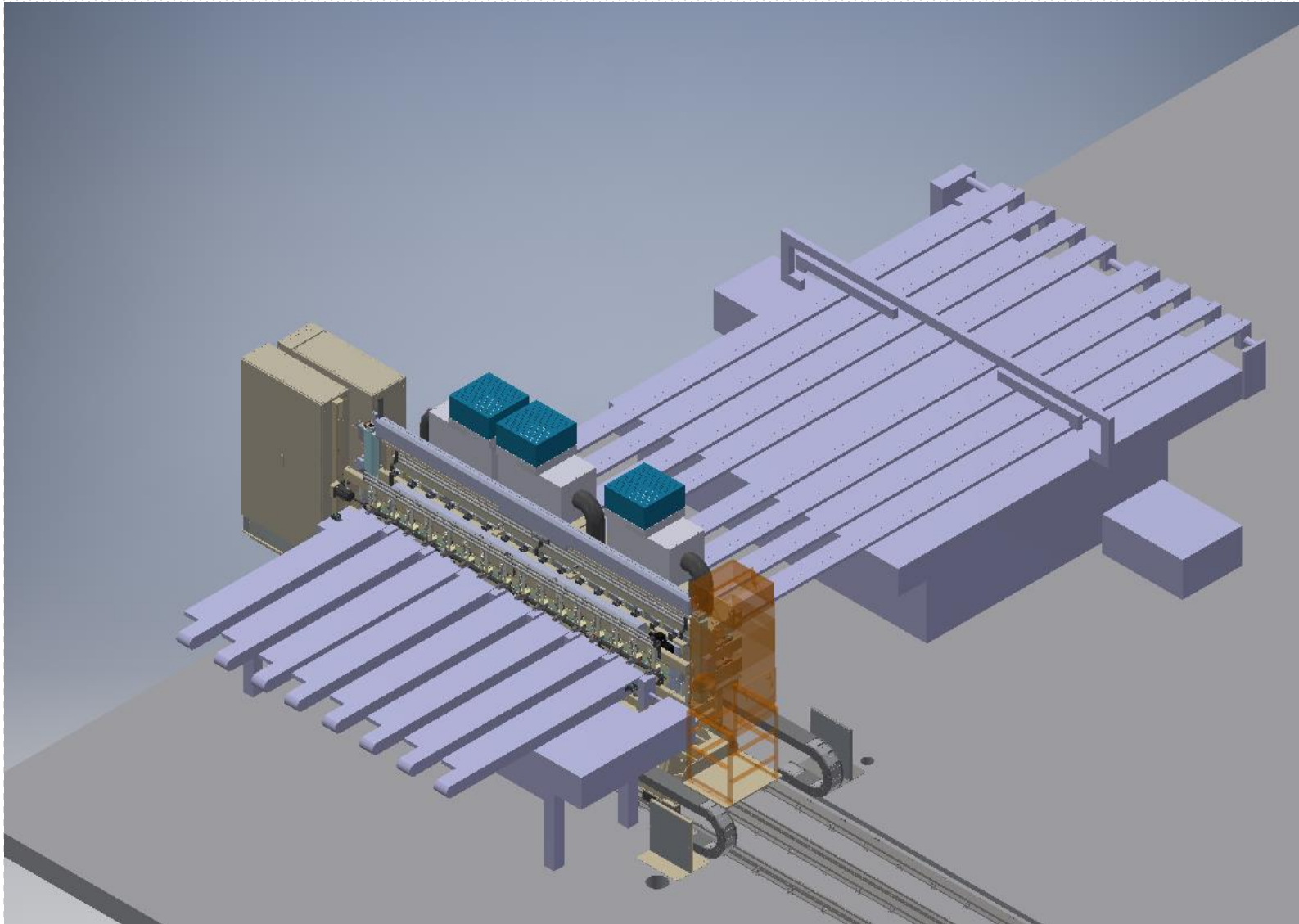


FAT Brush machine report (FCS)



FAT Brush machine report

Test description performed during FAT

- Test 1 blank at 150 m/min speed
- Marked 1 spot on the blank to test size and quantity of the particles before cleaning the blank
- Marked 6 different spots on the same blank to test size and quantity of the particles after cleaning the blank using brush machine (FCS)
- Collect the particles using special pads provided by measuring device manufacturer: TAPE LIFT PAD FOR PARTSENS
- Measure size and quantity of particles using measurement device: PARTSENS+ 4.0

BLANK BEFORE CLEANING



BLANK AFTER CLEANING



FAT Brush machine report

Device used to measure size and quantity of the particles on the blank

Manufacturer: OMT gmbh

Device name: PartsSens+ 4.0

Serial Number: PSP402115007

Calibration Valid Date: 08.2021 to 08.2022

Device used to collect the particles from the blank

Manufacturer: OMT gmbh

Device Name: Tape Lift Pad for Part Sens

Size Diameter: 36mm

Expiration date: 04.2023

FAT Brush machine report

Device used to measure size and quantity of the particles on the blank



FAT Brush machine report

Device used to collect the particles from the blank

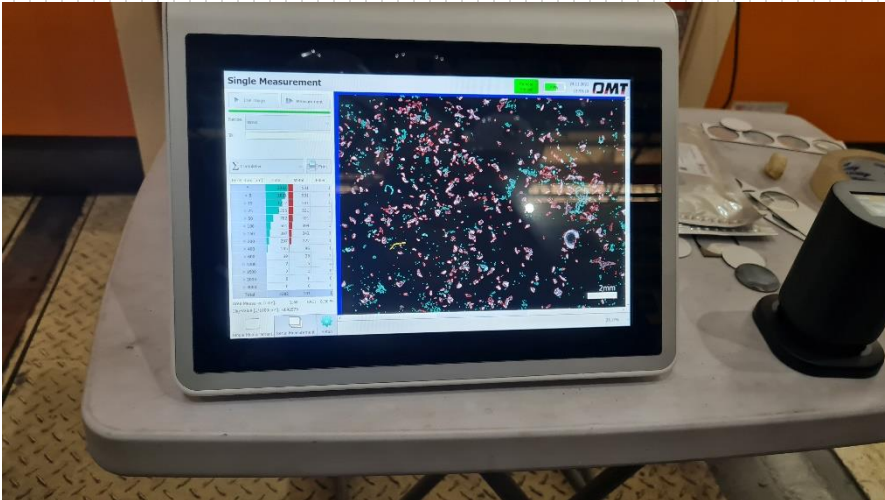


FAT Brush machine report

Result of spot measured before cleaning



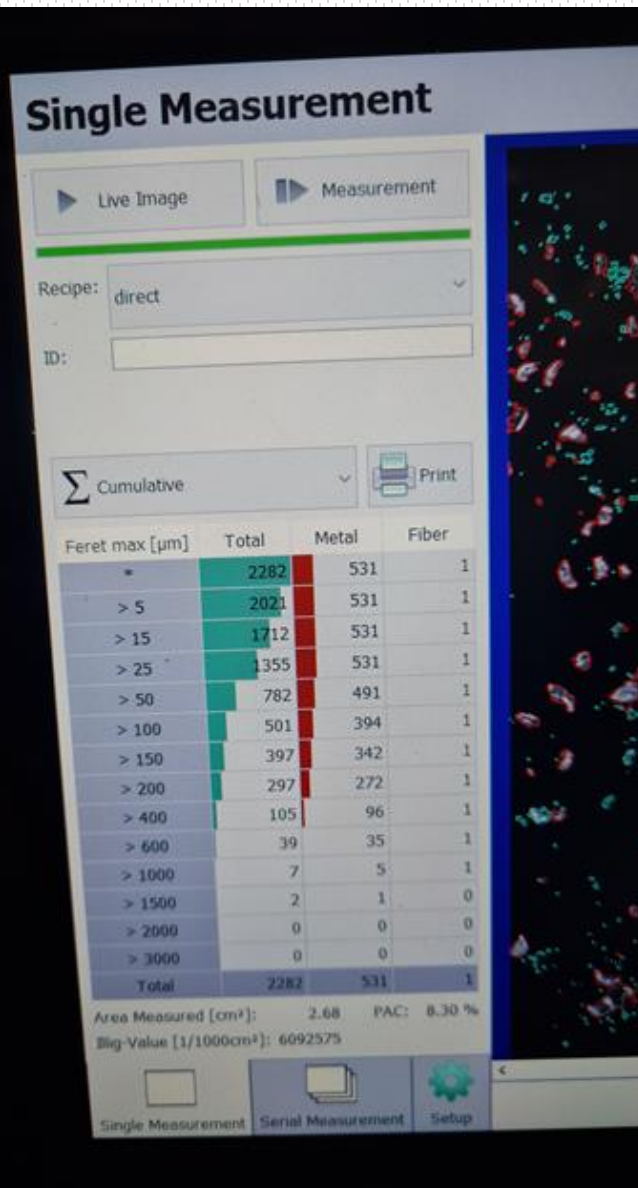
Picture of the status of the spot measured before cleaning



Result of the measure before cleaning

FAT Brush machine report

Result of spot measured before cleaning

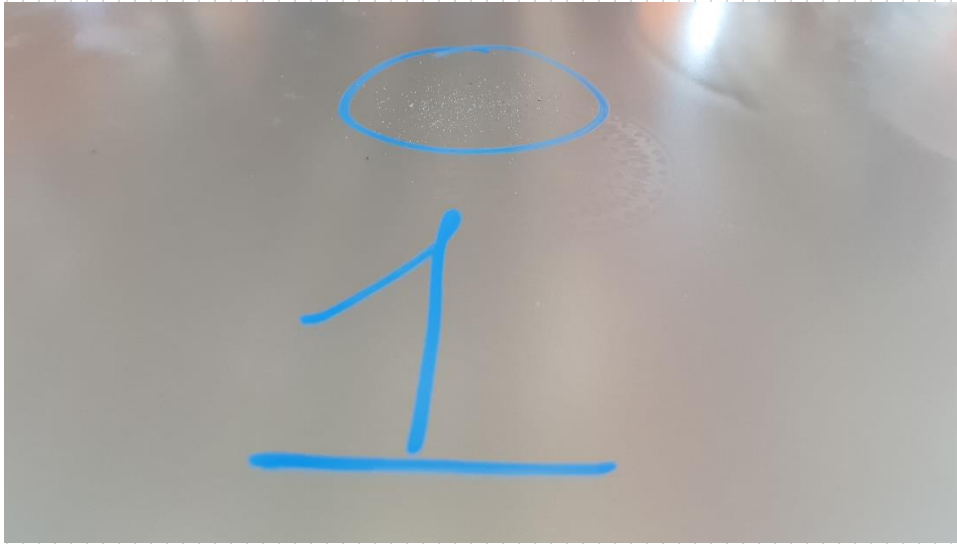


1. Result of the measure before cleaning
2. Particles quantity found greater than 50 μm: 782
3. Performance requested to pass FAT: clean at least 98% of the particles greater than 50 μm
4. Particles quantity greater than 50 μm to find after the cleaning in order to pass the FAT:

$$782 - 98\% = 15,64 \simeq 16 \text{ (or less)}$$

FAT Brush machine report

Result of measurement of the spot number 1 after cleaning



Spot 1 before cleaning



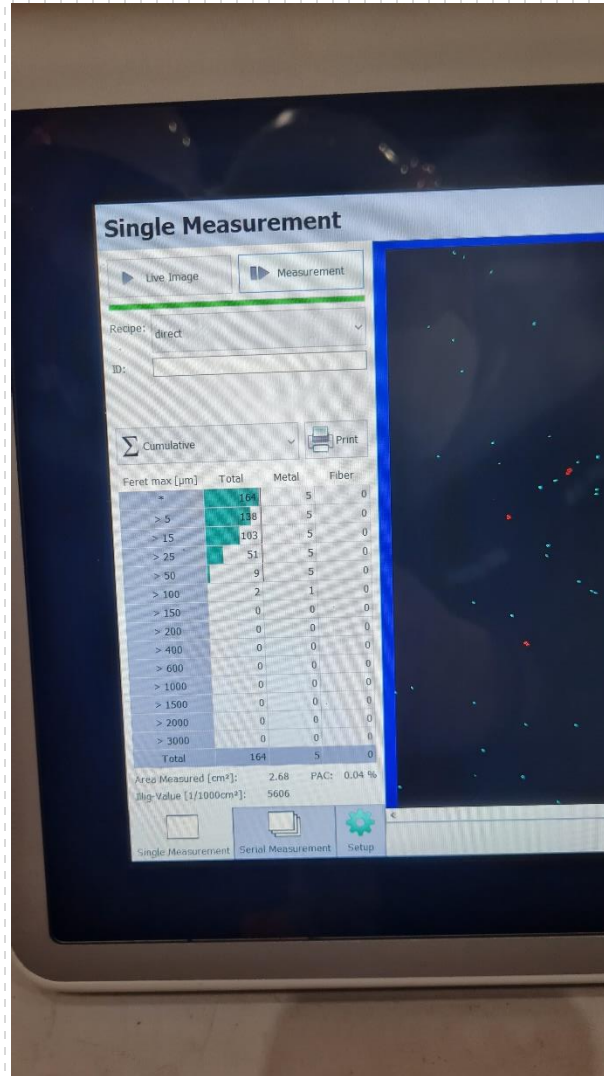
Spot 1 after cleaning

FAT Brush machine report

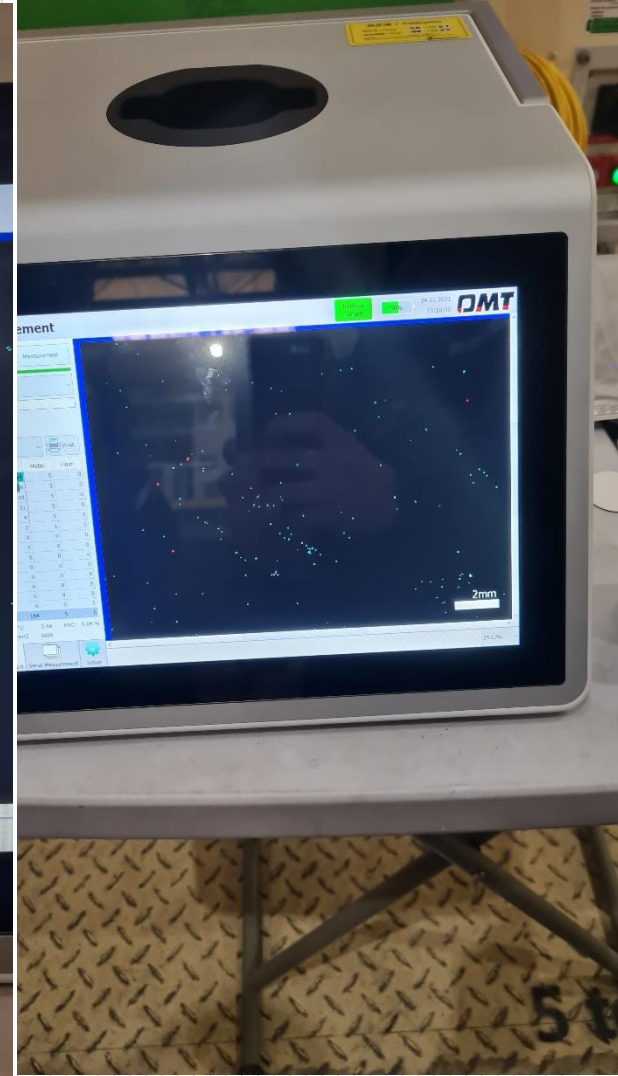
Result of measurement of the spot number 1 after cleaning



Spot 1 particles collection



Spot 1 particles measurement result



FAT Brush machine report

Result of measurement of the spot number 1 after cleaning

Number of particles greater than 50 μm to find after the cleaning in order to pass the FAT:

$$782 - 98\% = 15,64 \simeq 16$$

Number of particles greater than 50 μm found on spot number 1:

9

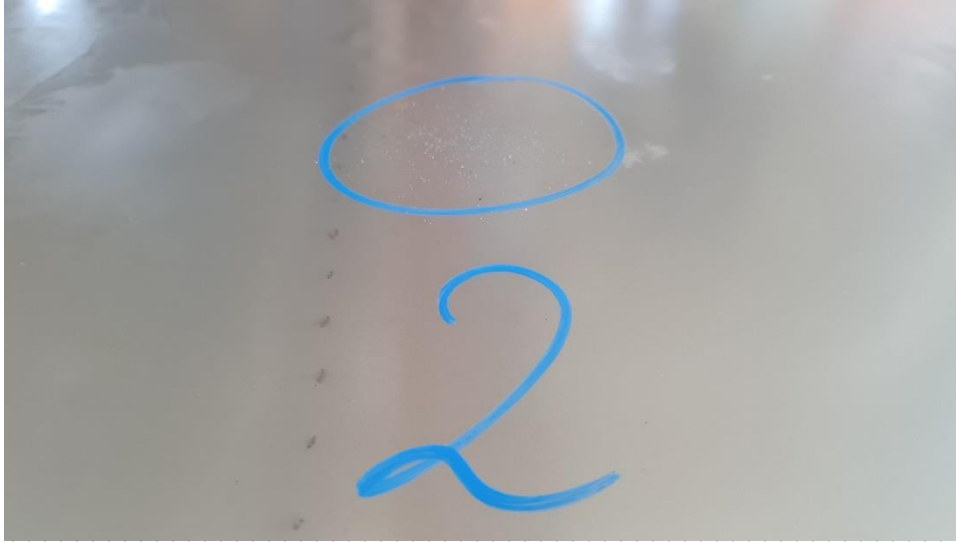
Percentage of cleaning performances:

$$(9/782) * 100 = 1,1$$

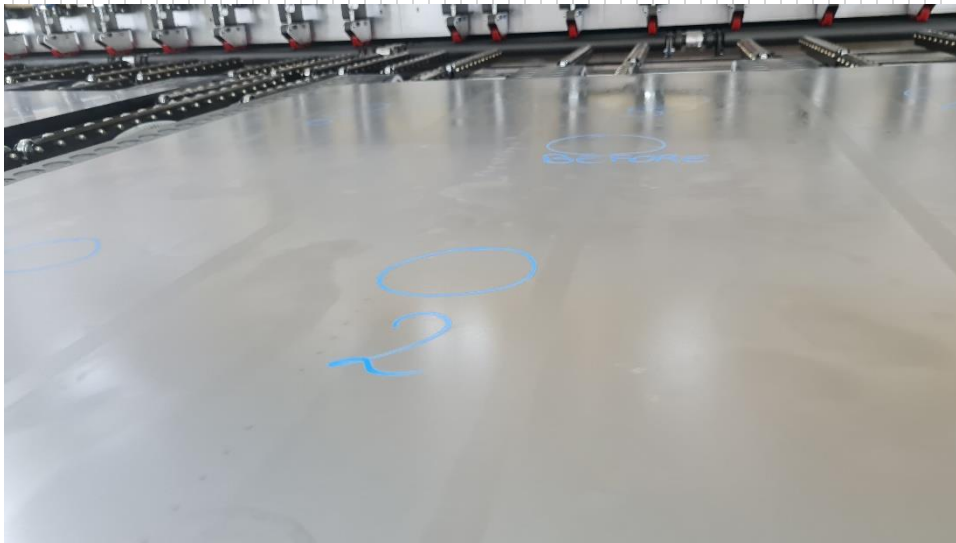
$$100 - 1,1 = 98,9 \%$$

FAT Brush machine report

Result of measurement of the spot number 2 after cleaning



Spot 2 before cleaning



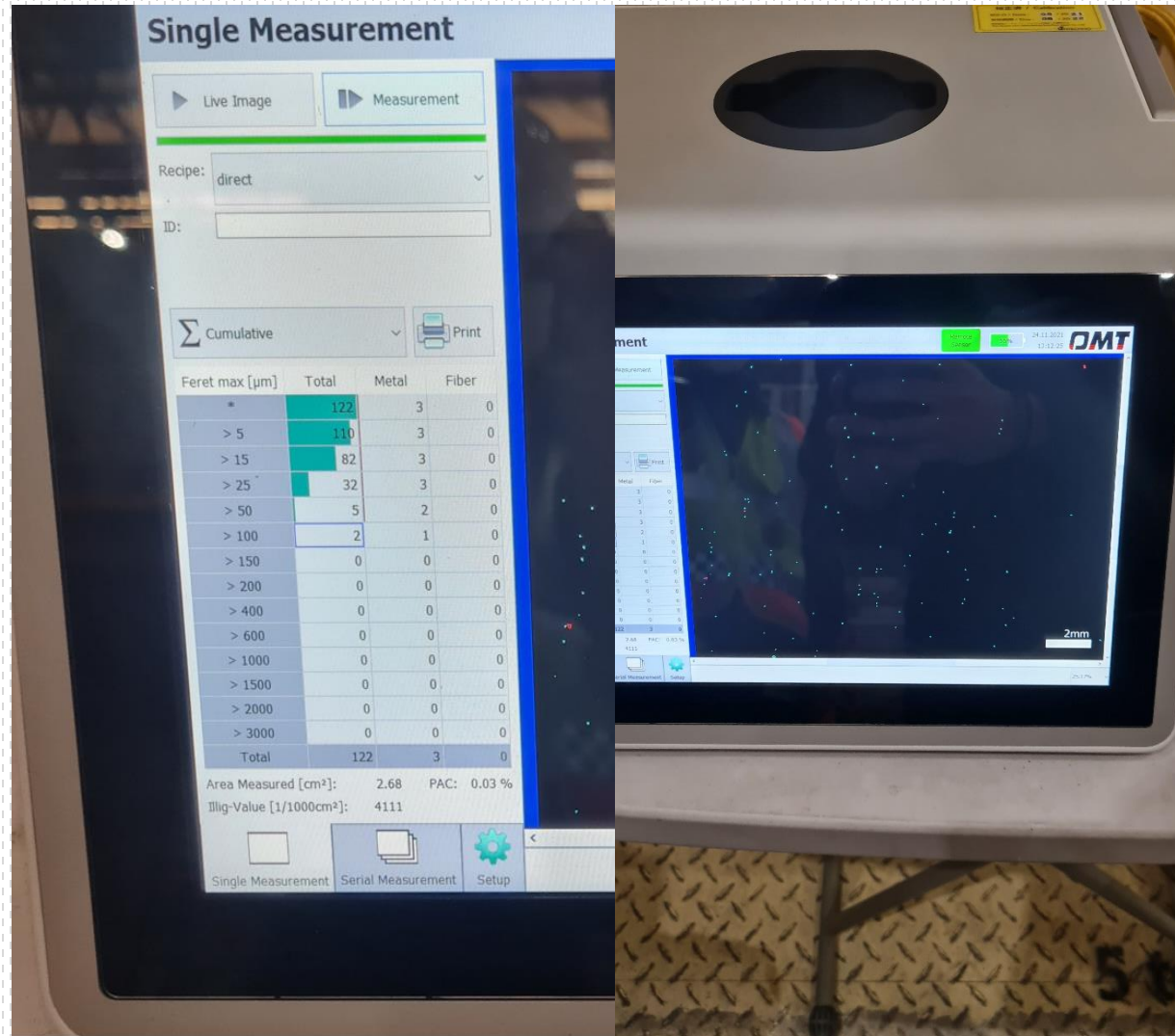
Spot 2 after cleaning

FAT Brush machine report

Result of measurement of the spot number 2 after cleaning



Spot 2 particles collection



Spot 2 particles measurement result

FAT Brush machine report

Result of measurement of the spot number 2 after cleaning

Number of particles greater than 50 μm to find after the cleaning in order to pass the FAT:

$$782 - 98\% = 15,64 \simeq 16$$

Number of particles greater than 50 μm found on spot number 2:

5

Percentage of cleaning performances:

$$(5/782) * 100 = 0,6$$

$$100 - 0,6 = 99,4\%$$

FAT Brush machine report

Result of measurement of the spot number 3 after cleaning

On this spot GMK requested to push particles before cleaning using fingers, to simulate worst condition.



Spot 3 before cleaning

Spot 3 before cleaning after pushing particles with fingers



Spot 3 after cleaning

FAT Brush machine report

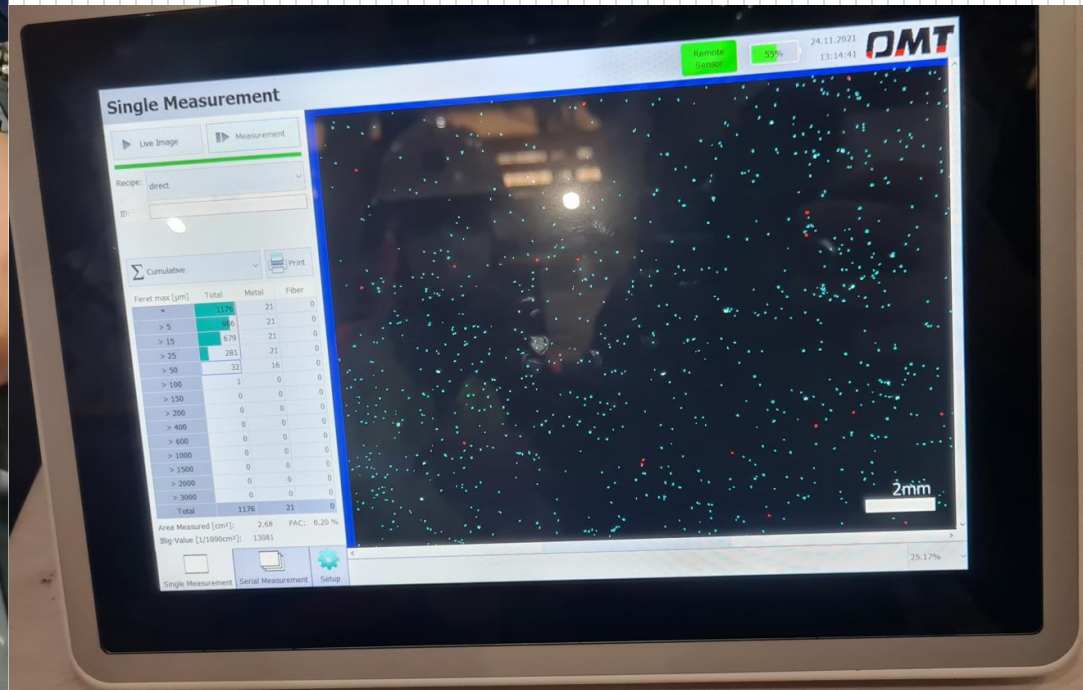
Result of measurement of the spot number 3 after cleaning



Spot 3 particles collection



Tape for lift pad after collection and measurement of the particles



Spot 3 particles measurement result

FAT Brush machine report

Result of measurement of the spot number 3 after cleaning

Number of particles greater than 50 μm to find after the cleaning in order to pass the FAT:

$$782 - 98\% = 15,64 \simeq 16$$

Number of particles greater than 50 μm found on spot number 3:

32

Percentage of cleaning performances:

$$(32/782) * 100 = 4$$

$$100 - 4 = 96 \%$$

FAT Brush machine report

Result of measurement of the spot number 4 after cleaning



Spot 4 before cleaning

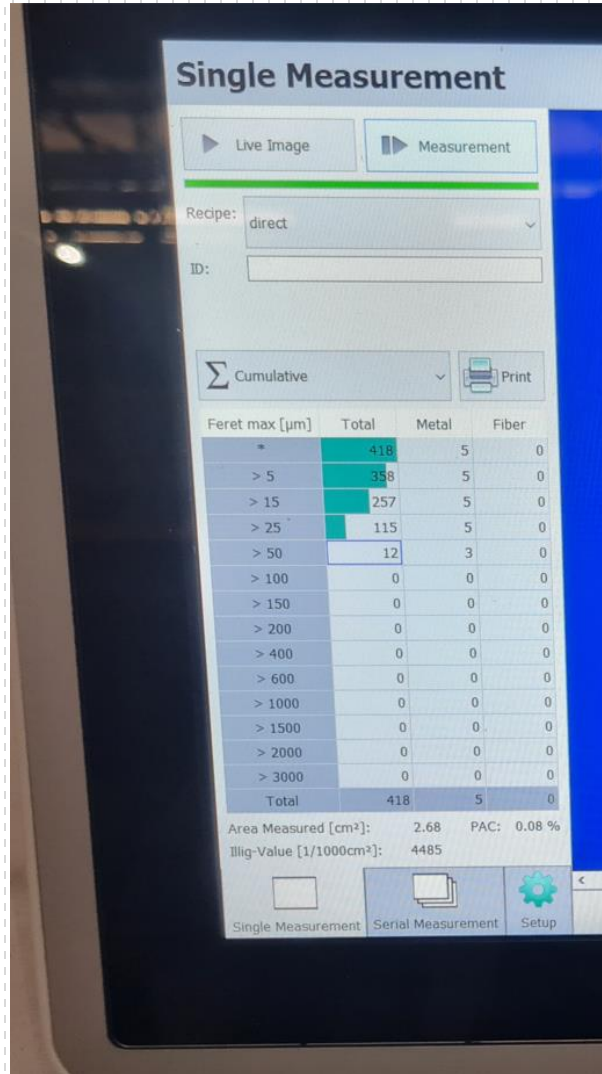


Spot 4 after cleaning

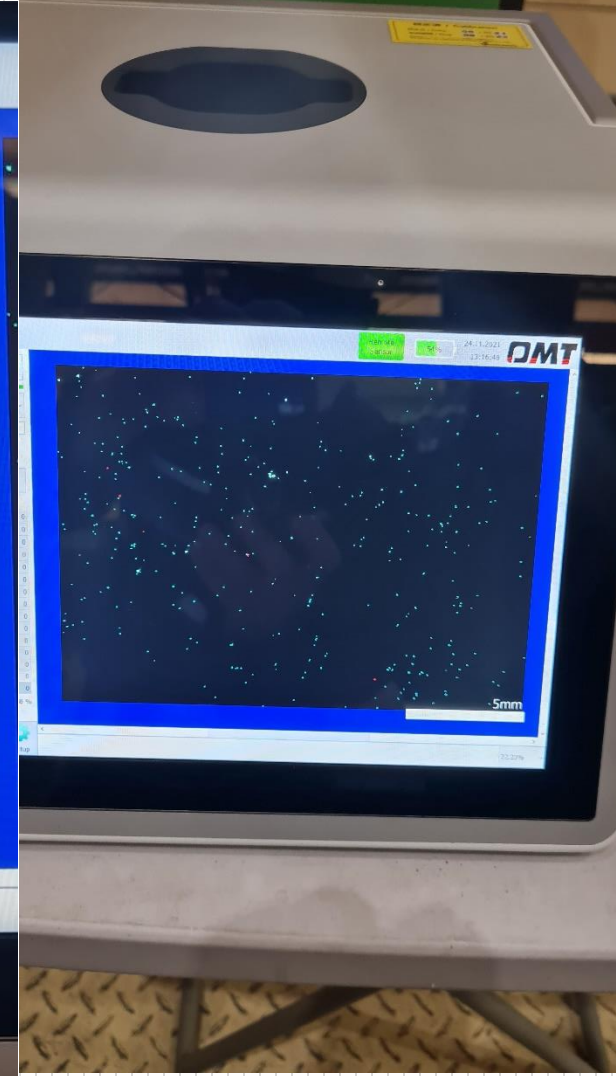
Result of measurement of the spot number 4 after cleaning



Spot 4 particles collection



Spot 4 particles measurement result



FAT Brush machine report

Result of measurement of the spot number 4 after cleaning

Number of particles greater than 50 μm to find after the cleaning in order to pass the FAT:

$$782 - 98\% = 15,64 \simeq 16$$

Number of particles greater than 50 μm found on spot number 4:

12

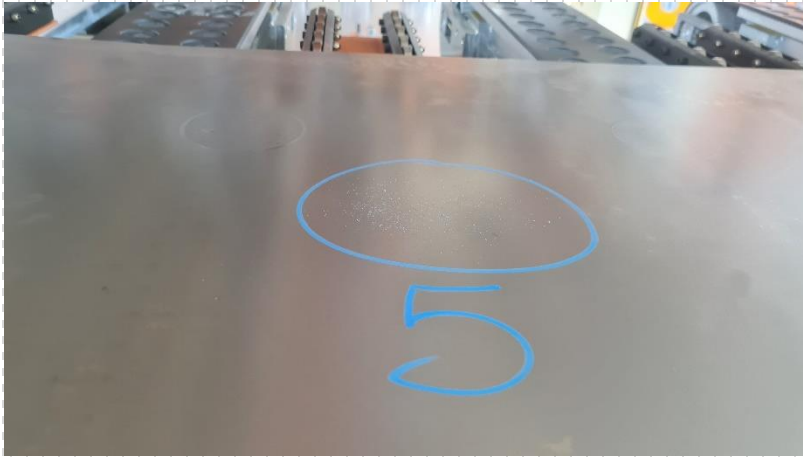
Percentage of cleaning performances:

$$(12/782) * 100 = 1,5$$

$$100 - 1,5 = 98,5 \%$$

FAT Brush machine report

Result of measurement of the spot number 5 after cleaning



Spot 5 before cleaning

On this spot GMK requested to spray oil on the particles before cleaning, to simulate worst condition.

Oil used is same oil used in oiler machine

Spot 5 before cleaning, after spray oil on the particles



Spot 5 after cleaning



Oil used for test

FAT Brush machine report

Result of measurement of the spot number 5 after cleaning



Spot 5 particles collection



Tape for lift pad after collection and measurement of the particles

FAT Brush machine report

Result of measurement of the spot number 5 after cleaning measured before cleaning

Single Measurement

Live Image

Measurement

Recipe: direct

ID:

Σ Cumulative

Print

Feret max [μm]	Total	Metal	Fiber
*	69	12	0
> 5	64	12	0
> 15	54	12	0
> 25	46	12	0
> 50	14	9	0
> 100	4	4	0
> 150	2	2	0
> 200	1	1	0
> 400	0	0	0
> 600	0	0	0
> 1000	0	0	0
> 1500	0	0	0
> 2000	0	0	0
> 3000	0	0	0
Total	69	12	0

Area Measured [cm²]: 2.68 PAC: 0.04 %
Illig-Value [1/1000cm²]: 16071



Single Measurement

Serial Measurement

Setup

Single Measurement

Live Image

Measurement

Recipe: direct

ID:

Σ Cumulative

Print

Feret max [μm]	Total	Metal	Fiber
*	69	12	0
> 5	64	12	0
> 15	54	12	0
> 25	46	12	0
> 50	14	9	0
> 100	4	4	0
> 150	2	2	0
> 200	1	1	0
> 400	0	0	0
> 600	0	0	0
> 1000	0	0	0
> 1500	0	0	0
> 2000	0	0	0
> 3000	0	0	0
Total	69	12	0

Area Measured [cm²]: 2.68 PAC: 0.04 %
Illig-Value [1/1000cm²]: 16071



Single Measurement

Serial Measurement

Setup

Spot 5 particles measurement result

FAT Brush machine report

Result of measurement of the spot number 5 after cleaning

Number of particles greater than 50 μm to find after the cleaning in order to pass the FAT:

$$782 - 98\% = 15,64 \simeq 16$$

Number of particles greater than 50 μm found on spot number 5:

14

Percentage of cleaning performances:

$$(14/782) * 100 = 1,7$$

$$100 - 1,7 = 98,3\%$$

FAT Brush machine report

Result of measurement of the spot number 6 after cleaning



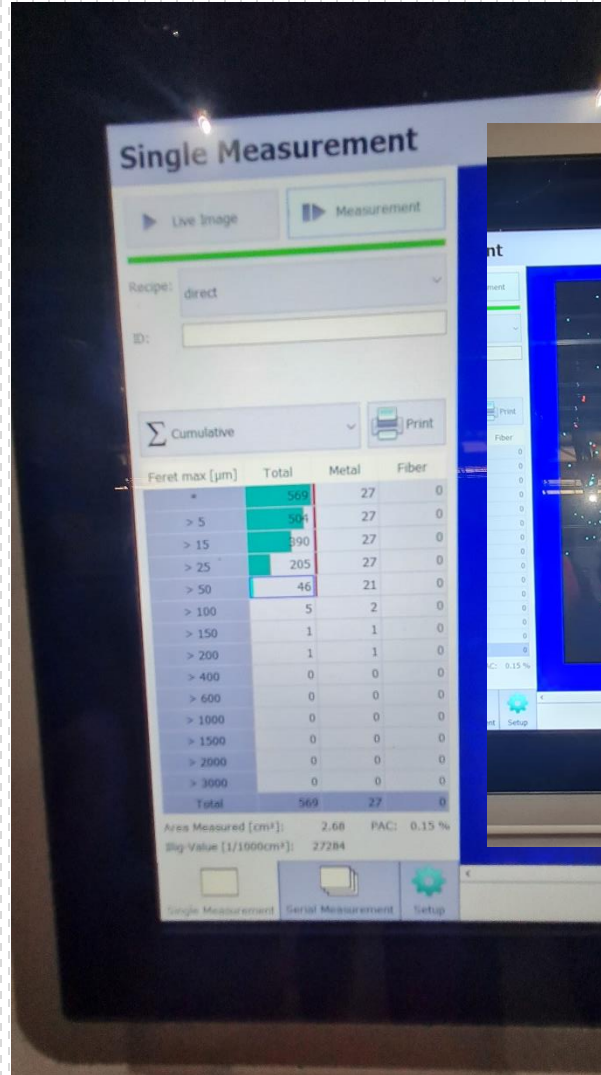
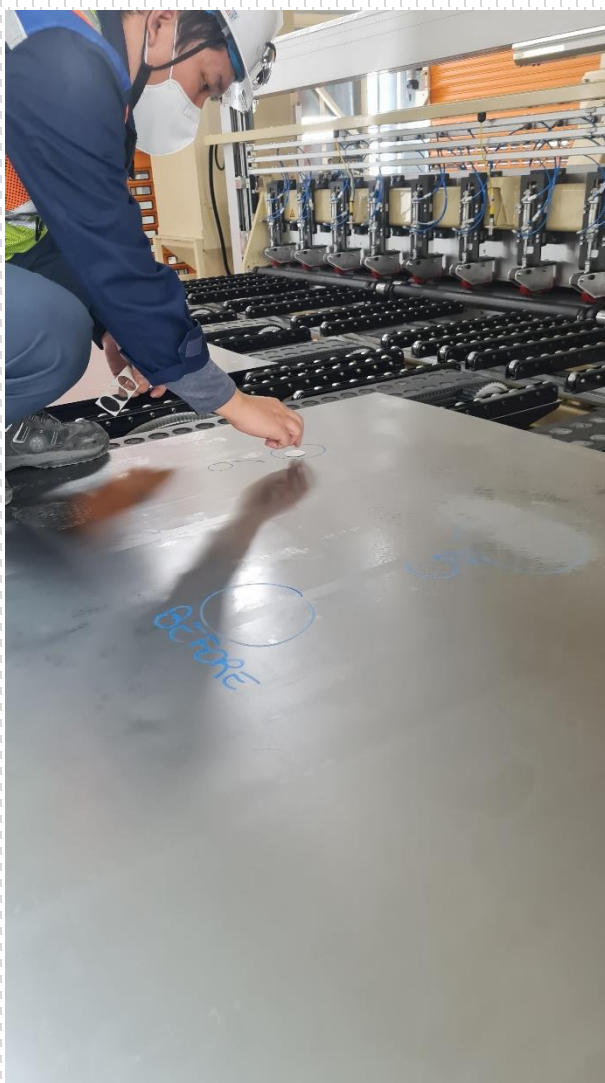
Spot 6 before cleaning



Spot 6 after cleaning

FAT Brush machine report

Result of measurement of the spot number 6 after cleaning



Spot 6 particles collection

Spot 6 particles measurement result

FAT Brush machine report

Result of measurement of the spot number 6 after cleaning

Number of particles greater than 50 μm to find after the cleaning in order to pass the FAT:

$$782 - 98\% = 15,64 \simeq 16$$

Number of particles greater than 50 μm found on spot number 6:

46

Percentage of cleaning performances:

$$(12/782) * 100 = 5,8$$

$$100 - 5,8 = 94,2\%$$

FAT Brush machine report

Avarage of performance cleaning after test 6 different spots

Summary of tests results

Test number	Cleaning performances
1	98,9 %
2	99,4 %
3	96 %
4	98,5 %
5	98,3 %
6	94,2%

Avarage calculation:

$$94,1+98,2+98,5+95,1+99,4+98,9 = 585,3$$

$$584,2 / 6 = 97,55 \%$$

Performance requested to pass FAT:
clean at least 98% of the particles
greater than 50 µm

Result of FAT: 97,55 %

FAT Brush machine report

Brush machine (FCS) FAT positive result

Date: 2021.11.24

Location: GMK Changwon Plant 52
Yongji-ro, Jungang-dong
성산구 창원시
Gyeongsangnam-do
PRESS SHOP XL2 LINE

Machine serial number: 2021727

Manufacturer: Dietronic s.r.l.

Buyer

Company name: GMK Changwon

Reference person: Seunghan Lee

Title: Project Leader

Seller

Company name: Dietronic s.r.l.

Reference person: Dario Cosentino

Title: Project Manager

Signature:

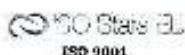


Dietronic s.r.l.



DieTronic
lubrication system

DieTronic s.r.l. - Lubricating technology
Via Rinaldo Ossola 10, 20139 - Italy
20139 - Italy (Anno 1990) - Italy
Tel. +39 02 73 216 124
Fax. +39 02 73 216 124
info@die-tronic.it www.die-tronic.it



Date 2021.11.24

CUSTOMER ACCEPTANCE REPORT (on site)

Customer

GMK Changwon Plant 52
Yongji-ro, Jungang-dong, 성산구 창원시
Gyeongsangnam-do

This signed document states the formal acceptance of the inspected equipment.
Acceptance means acknowledgment and understanding of the technical documentation being approved.

The signed document authorizes the supplier to consider the project and the machine as completely accepted by the customer.

Machine Type Combi 4200 separate frame	Serial Number 2021727
Referent Person Buyer Hanyoung Bae Seunghan Lee	Referent Person Seller Dario Cosentino

Comments:

People who attend FAT:

Maintenance manager: Jongil Choi
production manager: Seunghan Kim
ME Press & Polymer: Proj-Manager Hanyoung Bae

Remarks or reserves (if any):

- need to keep in mind to follow up below

1. Spare parts
2. Training material - operation
Maintenance

Under today's date in Customer's plant has been verified the correspondance of the machine, object of the present document, to the characteristics of the order.

.....(customer) authorizes the acceptance of the machine and all consequent contractual terms.

BUYER		SELLER
DATE:	2021.11.24	2021.11.24
COMPANY NAME:	GM Changwon Korea	DieTronic s.r.l.
REFERENCE PERSON:	Seunghan Lee	DARIO COSENTINO
TITLE:	Project Manager	PROJECT MANAGER
SIGNATURE:		