



Technical and commercial proposal Training EN4179

Date: March 21st, 2020

Company concerned: NDT aerospace inspector (Production and Maintenance)

Purpose : Training in **EDDY CURRENT** for **40 hours** according to **EN4179 requirements**

Mrs, Mr,

Following your demand, we are pleased to propose the training presented in the below pages with the detailed conditions.

If you agree on this proposal, could you please return the **summary of this proposal (page 2) completed and signed or a company PO** by e-mail.

Considering the actual sanitary conditions, MPP propose this training in its office within the respect of the Belgium government sanitary rules (distance between participants, gel, masks, ...) or by e-learning thru videoconference.

We are at your disposal for any complementary information that you would like to obtain.

Yours contacts :

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Sales and quality director
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We hope to have answer your demand.

JC Montanier
Sales and quality director

1) Proposal

<u>Title :</u> Eddy current training according to specification EN4179 (Aerospace)	<u>Duration :</u> 5 days, 40 hours
<u>Training reference :</u> 2020ET01E	<u>Training location :</u> <i>Parc Industriel des Hauts Sarts 1^{ère} avenue, 66 4040 Herstal - Belgique</i>
<u>Trainer :</u> Mr. Pierre Servais Doctor in sciences NDT, level 3 ET	<u>Dates :</u> From April, monday 20th to Friday 24th, 2020
<u>Proposal date :</u> March, 21st, 2020	<u>Language :</u> English
Room : Training room	<u>Time :</u> From 08h30 to 16h30

Please complete below

Number of participants :	Of which : <ul style="list-style-type: none"> • ouvrier(s) • employé(s) • cadre(s)
Last Name :	Company :
First Name :	Company stamp or signature and responsible name
Position :	
Date :	

Training content : Eddy current – 40 hours

1. INTRODUCTION

*Purpose of the exam
Method's characteristics*

2. MAIN PRINCIPALS

*Eddy current distribution
Electricity reminders
Phasors
Resistance Circuits
Resistance – Reactance circuits
Electromagnetism reminders
Skin effect
Depth penetration
Coupling
Frequency limit
Normalized impedance*

3. EDDY CURRENT DISTRIBUTION

*Generality
Within a bar
Within a tube*

4. IMPEDANCE DIAGRAM

*Generality
Coil around a bar
Coil around a tubular conductor*

5. DEFECTS PHASE DETERMINATION

*Surface defects
Defects within a tube*

6. INFLUENCE OF MATERIAL TO CONTROL

*Non-ferromagnetic materials (AEROSPACE)
Ferromagnetic materials*

7. SENSORS

*Functions
Double function sensors
Separated function sensors
Types
Encircling coils
Probes
Feelers
Measures
Differential Measures
Absolut Measures
Assemblies
Operating modes*

8. EDDY CURRENT EQUIPMENT

Oscillator

Measurement Systems

Balanced bridge

Magnetic circuit

Oscillator

Analysis systems

Impedance analysis

Phase analysis

Modulation analysis

Use of information

Visualization

Material verification

9. REFERENCE PARTS

10. MEASUREMENT TECHNIQS

Absolut measurement

Comparative measurement

Differential measurement

11. CONTROL OF AEROSPACE PRODUCTS

Calibers

Assemblies

Phase determination of an anomaly

Frequency influence

Sensor influence

12. MULTI-FREQUENCY TECHNIC

Principal

Parameters

Calibration

13. EDDY CURRENT INSPECTION

Prepare the product to inspect

Inspection range

Calibration

Utilization of the results

Criteria Evaluation

Inspection report

14. AEROSPACE PROCEDURES AND CODES

15. CONDUCTIVITY MEASUREMENTS OF ALUMINUM ALLOYS

16. COATING THICKNESS MEASUREMENTS