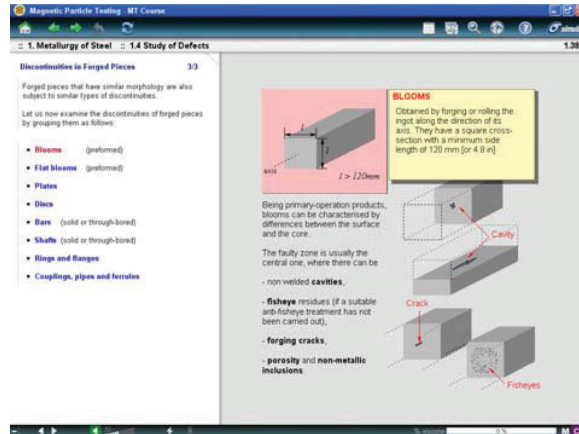


MT - MAGNETIC PARTICLE TESTING

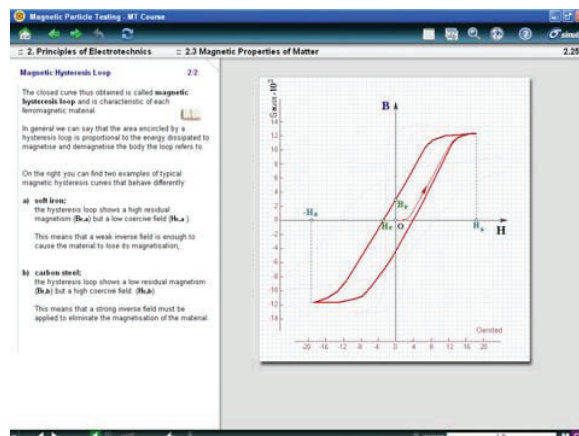
1. METALLURGY OF STEEL

- 1.1 Steel
- 1.2 Heat Treatments
- 1.3 Production of Carbon Steels
- 1.4 Study of Defects
- Self-evaluation test



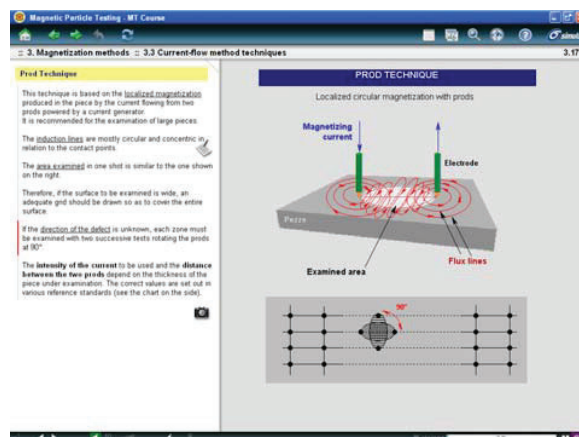
2. ELECTROTECHNICS PRINCIPLES

- 2.1 Natural magnetism
- 2.2 Electricity and magnetism
- 2.3 Magnetic properties of matter
- 2.4 Electric current
- 2.5 Standard Units
- Self-evaluation test



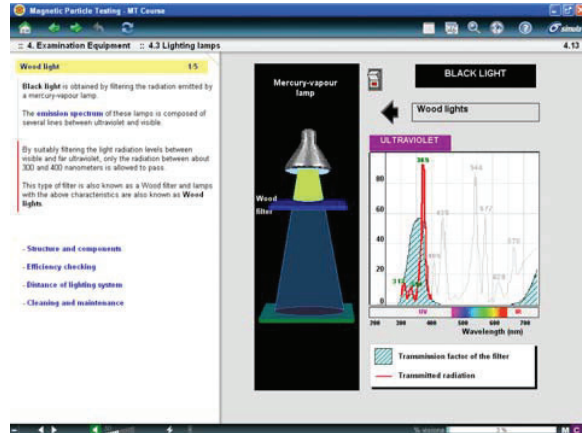
3. MAGNETIZATION METHODS

- 3.1 Examination principle
- 3.2 Criteria for the examination
- 3.3 Current-flow method techniques
- 3.4 Magnetic-field method techniques
- 3.5 Magnetizing currents
- Self-evaluation test



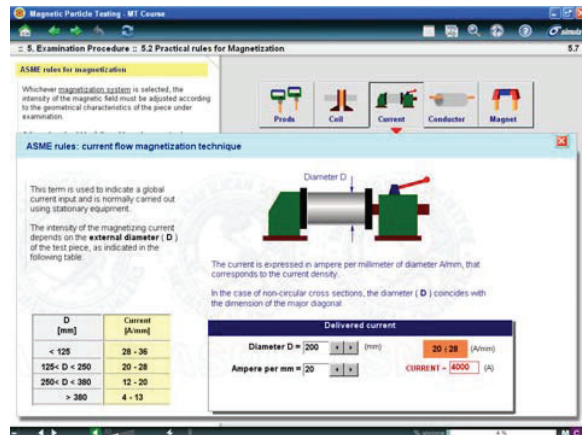
4. EXAMINATION EQUIPMENT

- 4.1 Magnetic particles
- 4.2 Characteristic of the particles
- 4.3 Lighting lamps
- 4.4 Magnetization Equipment
- Self-evaluation test



5. EXAMINATION PROCEDURE AND RESULTS EVALUATION

- 5.1 Preliminary activities
- 5.2 Magnetization rules
- 5.3 Magnetic field checking
- 5.4 Sequence of operations
- 5.5 Test results evaluation
- Self-evaluation test



VIDEOTHEQUE

FINAL TEST: Over 600 final tests.

NORMS: Over 50 norm references

NDT Supply.com, Inc.
7952 Nieman Road
Lenexa, KS 66214-1560 USA

Phone: 913-685-0675, Fax: 913-685-1125
e-mail: sales@ndtsupply.com, www.ndtsupply.com



MAGNETIC PARTICLE TESTING: DETAILED INDEX

1. METALLURGY OF STEEL ([>> MT](#))

1.1 Steel

- Introduction
- Components
- Solidification
- Iron-Carbon Diagram

1.3 Production of Carbon Steels

- Manufacturing Process
- Classification of Products
 - Forged pieces
 - Castings
 - Rolled plates
 - Pipes
 - Welded joints

1.5 Self-evaluation test

- Steel
- Heat Treatments
- Production of Carbon Steels
- Study of Defects

1.2 Heat Treatments

- Introduction
- Annealing
- Normalization

1.4 Study of Defects

- Discontinuities in steel
- Discontinuities in forged pieces
- Discontinuities in castings
- Discontinuities in rolled plates
- Discontinuities in pipes
- Discontinuities in welded joints

2. ELECTROTECHNICS PRINCIPLES ([>> MT](#))

2.1 Natural magnetism

- Magnets
- Magnetic Field

2.3 Magnetic properties of matter

- Ferromagnetism
- Magnetic Induction
- Magnetic hysteresis loop
- Magnetic flux

2.5 Self-evaluation test

- Electricity and magnetism
- Magnetic properties of matter
- Electric current

2.2 Electricity and magnetism

- Introduction
- Rectilinear conductor
- Loop
- Coil
- Solenoid
- Toroidal coil
- Magnetomotive force

2.4 Electric current

- Electric current definition
- Kinds of current
- Alternating current parameters
- Measuring instruments

Standard Units

3. MAGNETIZATION METHODS ([>> MT](#))

3.1 Examination principle

- Magnetic particle examination
- Advantages and limitations

3.2 Criteria for the examination

- Examination methods
- Magnetization methods
- Types of magnetization

3.3 Current-flow method techniques

- Current-flow methods
- Electrodes at either end of the piece
- Prod technique

3.4 Magnetic-field method techniques

- Magnetic-field method techniques
- Central conductor
- Yoke technique
- Coil
- Through-cable technique

3.5 Magnetizing currents

- Magnetizing currents
- Direct current
- Alternating current
- Rectified current
- Current values

3.6 Self-evaluation test

- Examination principle
- Method techniques
- Magnetizing currents

4. EXAMINATION EQUIPMENT ([>> MT](#))

4.1 Magnetic particles

- Types of examination medium
- Dry examination medium
- Wet examination medium
- Examination medium with contrast paint

4.2 Characteristic of the particles

- Types of powders
- Efficiency of powders
- Checking the efficiency of powders

4.3 Lighting lamps

- Light classification
- Wood light
 - Structure and components
 - Efficiency checking
 - Distance of lighting system
 - Cleaning and maintenance

4.4 Magnetization Equipment

- Equipment classification
- Stationary magnetic-particle inspection unit
- Generator for prod examination
- Portable magnets
- Portable electromagnets
- Efficiency of the equipment

4.5 Self-evaluation test

- Magnetic particles
- Lighting lamps
- Magnetization equipment

NDT Supply.com, Inc.

7952 Nieman Road
Lenexa, KS 66214-1560 USA

Phone: 913-685-0675, Fax: 913-685-1125

e-mail: sales@ndtsupply.com, www.ndtsupply.com



5. EXAMINATION PROCEDURE AND RESULTS EVALUATION ([>> MT](#))

5.1 Preliminary activities

- Test piece inspection
- Standard References

5.2 Magnetization rules

- ASME rules

5.3 Magnetic field checking

- Optimum induction level
- Instruments for the checking of magnetizing field
 - ASME probe
 - Berthold's probe
 - Reference block
 - Gauss meter

5.4 Sequence of operations

- Sequence of operations
- Step 1: Surface preparation
- Step 2: Checking for residual fields
- Step 3: Magnetization and spraying
- Step 4: Visual inspection
- Step 5: Demagnetization
- Step 6: Protective treatment

5.5 Test results evaluation

- Detecting a discontinuity
- Types of indications
- Types of discontinuities

5.6 Self-evaluation test

- Practical rules for magnetization
- Checking the magnetizing field
- Sequence of operations
- Evaluation of test results

NDT Supply.com, Inc.
7952 Nieman Road
Lenexa, KS 66214-1560 USA

Phone: 913-685-0675, Fax: 913-685-1125
e-mail: sales@ndtsupply.com, www.ndtsupply.com

