

ATLT-1070: BLUE PRINT READING FOR RIGGING I

Cuyahoga Community College

Viewing: ATLT-1070 : Blue Print Reading for Rigging I

Board of Trustees:

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Academic Term:

Spring 2019

Subject Code

ATLT - AIT-Lifting Technologies

Course Number:

1070

Title:

Blue Print Reading for Rigging I

Catalog Description:

Introduction to reading and interpreting working drawings for fabrication processes of both weldments and fabricated slings. Covers the fabrication prints of various types of rigging gear in use. Explore reading drawings including dimensions, bill of material, weld symbols, and specialty notes.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Departmental approval: admission to Lifting Technologies Apprenticeship program.

Outcomes

Course Outcome(s):

Discuss the purpose of Blue Prints used in the fabrication of rigging and lifting components for the manufacturing industry.

Objective(s):

1. List and define the terms used in drawings for the lifting industry.
2. Explain the purpose of shop drawings for building lifting devices and cranes.
3. Identify the various lifting components including general rigging assemblies.
4. Identify and explain the different components of a typical approval, shop and production drawings showing critical dimensions and components.

Course Outcome(s):

Interpret bill of materials, drawing notes and critical measurements.

Objective(s):

1. Interpret Bill of Materials to determine component selection, material type and weight.
2. Correlate a Bill of Material for shop and production drawings.
3. Identify individual components used for fabrication of lifting devices.
4. Identify and explain special procedures required for pre-prep, assembly and post assembly.
5. Recognize critical measurements required for tolerances and determine from drawing centerlines.

Course Outcome(s):

Identify structural components, welding symbols and welding Joints for fabrication of lifting device.

Objective(s):

1. Identify different types of structural members.
 2. Recognize different weld symbols.
 3. List and define terms used for welding symbols and joints.
 4. Interpret drawing to select correct weld and weld joint.
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Course Outcome(s):

Demonstrate the ability to read production drawing.

Objective(s):

1. Identify critical dimensions required for material selection.
 2. Reference bill of material for correct material selection required for fabrication of lifting device.
 3. Interpret component drawings to effectively layout sub-component sections for final assembly.
 4. Verify weld and joint selection referenced in fabrication drawing.
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Methods of Evaluation:

1. Participation
2. Assignments
3. Quizzes & Exams
4. Practical application projects

Course Content Outline:

1. Rigging Blue Prints
 - a. Terminology
 - i. Bill of Material
 - ii. Dimensions
 - iii. Centerlines
 - iv. Weld Symbol
 - v. Title Block
 - vi. Note
 - vii. Critical Measurement
 - viii. Revision
 - ix. Tag
 - x. Item Number
 2. Purpose
 - a. Building Instructions
 - i. Components
 - ii. Welding Requirements
 - iii. Notes
 - b. Materials
 - i. Plate
 - ii. Wide Flange
 - iii. Angle
 - iv. Bail
 - c. Assemblies
 - i. Sub-Assembly
 - ii. Item numbers
 - iii. Components
 - d. Special Considerations
 - i. Notes
 - ii. Material Pre-Prep
 - iii. Tolerances
3. Lifting Components
 - a. Components
 - i. Lifting Beam
 - ii. Slings
 - iii. Shackle

- iv. Hooks
- v. Bail
- 4. Drawing Components
 - a. Components
 - i. Title Block
 - ii. Scale
 - iii. Design Category
 - iv. Service Class
 - v. Revision
 - vi. Item Numbers
 - vii. Customer
 - viii. Tolerances
 - 5. Bill of Materials
 - a. Interpret Bill of Materials to determine
 - i. component selection
 - 1. Bail
 - 2. Lifting Lug
 - 3. Pad Eye
 - 4. Trolley
 - 5. Hoist
 - 6. End Trucks
 - ii. material type
 - 1. A572-50
 - 2. A36
 - 3. A992
 - 4. A500B
 - 5. T1
 - iii. Weight
 - 1. Beam weight
 - 2. Plate Gauge
 - 3. Lifting Capacities
 - b. Production drawings
 - i. Shop Drawings
 - 1. Item number
 - 2. Item weight
 - 3. Material type
 - ii. Production Drawings
 - 1. Quantity
 - 2. Stock
 - 3. Out source
 - c. Components
 - i. Plate
 - ii. Wide Flange
 - iii. Channel
 - iv. Angel
 - v. Special Shape
 - vi. Burn Outs
 - d. Assembly
 - i. Procedure
 - 1. Welding
 - 2. Fitting
 - 3. Machining
 - ii. Pre- Assembly
 - 1. Cleaning
 - 2. Staging
 - 3. Layout
 - iii. Assembly

1. Weld
2. Layout
3. Grind
- iv. Post-Assembly
 1. Test
 2. Inspect
 3. Clean
 4. Paint
 5. Tag
- e. Critical measurements
 - i. Tolerances
 1. Strict
 2. Variable
 - ii. Centerlines
 1. Beam
 2. Plate
 3. Special Shapes
6. Joints for Fabrication
 - a. Structural members
 - i. Wide Flange
 - ii. Tubing
 - iii. Channel
 - iv. Angel
 - b. Weld symbols
 - i. Fillet
 - ii. Bevel
 - iii. Grove
 - iv. Butt
 - v. Plug
 - c. Terminology
 - i. Fillet
 - ii. Single Pass
 - iii. Multi-Pass
 - iv. Weld Size
 - v. Penetration depth
 - vi. Welding wire
 - d. Weld and Joint Selection
7. Production Drawings
 - a. Critical dimensions
 - i. Tolerances
 - ii. Centerlines
 - b. Material Selection
 - i. Beam Size
 - ii. Plate Thickness
 - iii. Shackle
 - c. Sub-Component
 - i. Connectors
 - ii. Fasteners
 - iii. Weld Joints
 - d. Verification
 - i. Fillet
 - ii. Bevel
 - iii. Butt
 - iv. Grove
 - v. Plug

Resources

Walker/Polanin. *Welding Print Reading*. 6th ed. G-W Publisher, 2013.

Symbols for Welding. *Hobart Institute of Welding Technology*. Hobart Institute of Welding Technology, 2008.

Resources Other

1. <http://www.mazzellalifting.com/>

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