



Hager Companies  
139 Victor St.  
St. Louis, MO 63104  
Phone: (800) 325-9995  
Phone: (314) 772-4400  
Fax: (800) 782-0149  
E-mail: [webmaster@hagerco.com](mailto:webmaster@hagerco.com)  
[www.hagerco.com](http://www.hagerco.com)

This MANU-SPEC<sup>®</sup> utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*<sup>™</sup>, *SectionFormat*<sup>™</sup> and *PageFormat*<sup>™</sup>. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies continuous geared hinges. These products are manufactured by Hager Companies. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

**SECTION 08 71 00  
DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
1. Concealed leaf hinges.
  2. Full surface hinges.
  3. Half surface hinges.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

- B. Related Sections:
1. Section [01 33 00 - Submittal Procedures] [\_\_\_\_\_].
  2. Section [01 45 00 - Quality Control] [\_\_\_\_\_].
  3. Section [01 78 00 - Closeout Submittals] [\_\_\_\_\_].
  4. Section [08 11 00 - Metal Doors and Frames] [\_\_\_\_\_].
  5. Section [08 11 16 - Aluminum Doors and Frames] [\_\_\_\_\_].
  6. Section [08 14 16 - Flush Wood Doors] [\_\_\_\_\_].

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 01 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

**1.02 REFERENCES**

- A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI/BHMA):



1. ANSI/BHMA A156.7 Hinge Templates.
2. ANSI/BHMA A156.18 Materials & Finishes.
3. ANSI/BHMA A156.26 Continuous Hinges.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 01 Submittal Procedures Section.

### 1.03 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 01 Submittal Procedures.
- B. Product Data: Submit manufacturer's complete product literature for specified hardware items, detailed installation diagrams and instructions, including:
  1. Preparation instructions and recommendations.
  2. Storage and handling requirements and recommendations.
  3. Installation methods.
  4. Manufacturer's SPEC-DATA® product sheet.
- C. Samples:

Specifier Note: Describe specific types and quantities of samples required to determine style, finish or other characteristics.

1. Submit samples upon request.
  2. Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
  3. After approval, samples will be returned for incorporation into work.
- D. Templates: Submit templates detailing installation procedures, including layout, dimensions and placement of hardware.
  - E. Closeout Submittals: Submit the following:
    1. Warranty: Manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

### 1.04 QUALITY ASSURANCE

- A. Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 01 Regulatory Requirements Section. Repetitive statements should be avoided.

- B. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 01 Project Management and Coordination (Project Meetings).

### 1.05 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 01 Product Requirements.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery, Storage and Protection:
  1. Deliver, store and handle in accordance with Section [01 61 00 - Common Product Requirements] [\_\_\_\_\_].
  2. Deliver, store and handle materials in accordance with manufacturer's written instructions.
  3. Deliver in original packaging with labels and identification intact.
  4. Ship hardware items in lots coordinated with openings, as numbered in opening schedule.
  5. Inspect hardware items upon delivery to ensure that specified products have been received.

6. Store hardware items in secure dry location, protected from weather until ready for installation.

D. Waste Management and Disposal:

Specifier Note: ENVIRONMENT: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space.

1. Separate waste materials for [Reuse] [And] [Recycling] [\_\_\_\_\_] in accordance with Section [01 74 19 - Construction Waste Management and Disposal] [\_\_\_\_\_].
2. Remove from site and dispose of packaging materials at appropriate recycling facilities.
3. Collect and separate for disposal [Paper] [Plastic] [Polystyrene] [Corrugated cardboard] [\_\_\_\_\_] packaging material [In appropriate onsite bins] [\_\_\_\_\_] for recycling.

1.06 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

Specifier Note: Coordinate article below with Conditions of the Contract and with Division 01 Closeout Submittals (Warranty).

1.07 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents. Manufacturer's standard warranty: One calendar year from date of delivery to Project.

**PART 2 PRODUCTS**

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 HAGER CONTINUOUS GEARED HINGES

- A. Manufacturer: Hager Companies.
1. Contact: 139 Victor St., St. Louis, MO 63104; Telephone: (800) 325-9995, (314) 772-4400; Fax: (800) 782-0149; E-mail: [webmaster@hagerco.com](mailto:webmaster@hagerco.com); website: [www.hagerco.com](http://www.hagerco.com).
- B. Proprietary Products/Systems: Hager Continuous Geared Hinges.

Specifier Note: Repeat the following article when more than one type of fully concealed leaf hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

1. Roton Continuous Geared Fully Concealed Leaf Hinges: To ANSI/BHMA A156.26, aluminum; manufactured of 3 interlocking aluminum extrusions (2 hinges leaves and 1 cover channel), door leaf and jamb leaf geared together for entire hinge length and joined by cover channel [Electric door prep with exposed {Contact} {Switch} {Contact/switch} type] [Concealed {Monitor only} {Through-wire only} {Electric through-wire with monitoring} type].
  - a. Hinge Grade: [Light Duty] [Standard Duty] [Heavy Duty] [Lead Lined] [Fire Rated] [Extra Heavy Duty] [\_\_\_\_\_].

Specifier Note: Hinge selection is determined by the door thickness, type of door, door weight and cycling frequency. Specify frame type to ensure correct fasteners are provided. Specify Extra Heavy Duty for doors more than 1 3/4 inches (44 mm) thick.

- b. Door Thickness: [1 3/8 inches (35 mm)] [1 3/4 inches (44 mm)] [2 3/8 inches (60 mm)].
- c. Door Type: [{Solid} {Hollow} {\_\_\_\_\_} core, {Interior} {Exterior} {\_\_\_\_\_}, {Wood} hollow metal] [\_\_\_\_\_].

Specifier Note: For doors over 200 lb (91 kg), use 16 gauge (1.5 mm thick) channel frame reinforcement.

- d. Door Weight: [100 lb (45 kg)] [150 lb (68 kg)] [200 lb (91 kg)] [\_\_\_\_\_].
- e. Cycling Frequency: [Low] [Medium] [High].

- f. Frame Type: [Wood] [Steel] [\_\_\_\_\_].

Specifier Note: Standard lengths are 1 inch (25.4 mm) shorter than nominal door heights, allowing for threshold clearance, carpeting and head clearance. Other lengths may be specified based on net door height, not nominal door height.

- g. Hinge Length: [Standard] [Custom] [79 inches (2007 mm)] [83 inches (2108 mm)] [85 inches (2159 mm)] [95 inches (2413 mm)] [119 inches (3023 mm)] [\_\_\_\_\_].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project.

- h. Acceptable Material:

- 1) Hager Companies continuous geared Roton fully concealed hinges for light duty door: 500-048.
- 2) Hager Companies continuous geared Roton fully concealed hinges for single core wood door: [750-134] [750-138].
- 3) Hager Companies continuous geared Roton fully concealed hinges standard duty: [780-041] [780-110] [780-111] [780-112] [780-113] [780-114] [780-208] [780-224] [780-226].
- 4) Hager Companies continuous geared Roton fully concealed hinges heavy duty: [780-041 HD] [780-110 HD] [780-111 HD] [780-112 HD] [780-114 HD] [780-208 HD] [780-224 HD] [780-226 HD].
- 5) Hager Companies continuous geared Roton fully concealed hinges heavy duty wide throw: 780-235 HD.
- 6) Hager Companies continuous geared Roton fully concealed hinges for lead lined: [780-041 LL] [780-111 LL] [780-112 LL] [780-224 LL] [780-226 LL].
- 7) Hager Companies continuous geared Roton fully concealed hinges for extra heavy duty: [1200-600] [1200-650].

Specifier Note: Repeat the following article when more than one type of full surface hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

2. Roton Continuous Geared Full Surface Hinges: To ANSI/BHMA A156.26, aluminum; manufactured of 3 interlocking aluminum extrusions (2 hinges leaves and 1 cover channel), door leaf and jamb leaf geared together for entire hinge length and joined by cover channel [Electric door prep with exposed {Contact} {Switch} {Contact/switch} type] [Concealed {Monitor only} {Through-wire only} {Electric through-wire with monitoring} type].

- a. Hinge Grade: [Standard duty] [Heavy duty] [\_\_\_\_\_].

Specifier Note: Hinge selection is determined by the door thickness, type of door, door weight and cycling frequency. Specify frame type to ensure correct fasteners are provided.

- b. Door Thickness: [1 3/8 inches (35 mm)] [1 3/4 inches (44 mm)].  
 c. Door Type: [{Solid} {Hollow} {\_\_\_\_\_} core, {Interior} {Exterior} {\_\_\_\_\_}], {Wood} hollow metal] [\_\_\_\_\_].

Specifier Note: For doors over 200 lb (91 kg), use 16 gauge (1.5 mm thick) channel frame reinforcement.

- d. Door Weight: [100 lb (45 kg)] [150 lb (68 kg)] [200 lb (91 kg)] [\_\_\_\_\_].  
 e. Cycling Frequency: [Medium] [High].  
 f. Frame Type: [Wood] [Steel] [\_\_\_\_\_].

Specifier Note: Standard lengths are 1 inch (25.4 mm) shorter than nominal door heights, allowing for threshold clearance, carpeting and head clearance. Other lengths may be specified based on net door height, not nominal door height.

- g. Hinge Length: [Standard] [Custom] [79 inches (2007 mm)] [83 inches (2108 mm)] [85 inches (2159 mm)] [95 inches (2413 mm)] [119 inches (3023 mm)] [\_\_\_\_\_].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project.

h. Acceptable Material:

- 1) Hager Companies continuous geared Roton full surface hinges for standard duty: [780-057] [780-157] [780-210].
- 2) Hager Companies continuous geared Roton full surface hinges for heavy duty: [780-057 HD] [780-157 HD] [780-210 HD] [780-257 HD].
- 3) Hager Companies continuous geared Roton full surface hinges for light duty: 500-220.

Specifier Note: Repeat the following article when more than one type of half mortise hinge is required for project. Refer to Hager Companies door hardware catalog when selecting and specifying hinges.

3. Roton Continuous Geared Half Surface Hinges: To ANSI/BHMA A156.26, aluminum; manufactured of 3 interlocking aluminum extrusions (2 hinges leaves and 1 cover channel), door leaf and jamb leaf geared together for entire hinge length and joined by cover channel [Electric door prep with exposed {Contact} {Switch} {Contact/switch} type] [Concealed {Monitor only} {Through-wire only} {Electric through-wire with monitoring} type].

a. Hinge Grade: [Standard duty] [Heavy duty] [\_\_\_\_\_].

Specifier Note: Hinge selection is determined by the door thickness, type of door, door weight and cycling frequency. Specify frame type to ensure correct fasteners are provided.

b. Door Thickness: [1 3/8 inches (35 mm)] [1 3/4 inches (44 mm)].

c. Door Type: [{Solid} {Hollow} {\_\_\_\_\_} core, {Interior} {Exterior} {\_\_\_\_\_}, {Wood} hollow metal] [\_\_\_\_\_].

Specifier Note: For doors over 200 lb (91 kg), use 16 gauge (1.5 mm thick) channel frame reinforcement.

d. Door Weight: [100 lb (45 kg)] [150 lb (68 kg)] [200 lb (91 kg)] [\_\_\_\_\_].

e. Cycling Frequency: [Medium] [High].

f. Frame Type: [Wood] [Steel] [\_\_\_\_\_].

Specifier Note: Standard lengths are 1 inch (25.4 mm) shorter than nominal door heights, allowing for threshold clearance, carpeting and head clearance. Other lengths may be specified based on net door height, not nominal door height.

g. Hinge Length: [Standard] [Custom] [79 inches (2007 mm)] [83 inches (2108 mm)] [85 inches (2159 mm)] [95 inches (2413 mm)] [119 inches (3023 mm)] [\_\_\_\_\_].

Specifier Note: Select or delete following sentences to suit chosen hardware. Refer to Hager Companies product catalog for description of item number and specify to suit project.

h. Acceptable Material:

- 1) Hager Companies continuous geared Roton half surface hinges for standard duty: [780-045] [780-046] [780-053] [780-054] [780-155] [780-213] [780-259].
- 2) Hager Companies continuous geared Roton half surface hinges for heavy duty: [780-045 HD] [780-046 HD] [780-053 HD] [780-054 HD] [780-155 HD] [780-211 HD] [780-213 HD] [780-259 HD] [780-300 HD].
- 3) Hager Companies continuous geared Roton full surface hinges for light duty: 500-200.

## 2.02 ACCESSORIES

- A. Mortar Box: Galvanized steel 0.040 inch (1.02 mm) thick, size 9 inches (229 mm) x 7 inches (178 mm) x inside dimension 1 3/4 inches (44 mm) x 1 3/4 inches (44 mm), complete with top and bottom knockouts.

Specifier Note: Edit article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 01 Project Requirements (Product Substitutions Procedures) Section.

## 2.03 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

## PART 3 EXECUTION

**3.01 MANUFACTURER'S INSTRUCTIONS**

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Hager Companies SPEC-DATA sheets for hinges.
- B. Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hinges.
- C. Furnish manufacturer's instructions for proper installation of each hinge component.

**3.02 EXAMINATION**

- A. Site Verification of Conditions: Verify that substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.

**3.03 INSTALLATION**

Specifier Note: Note there are special hinge mounting height requirements for elementary schools, and accessible doors.

Specifier Note: Check frame types for hinge mounting locations. Some frame manufacturers have predetermined mounting heights for hinges. Hager Companies Standard Hardware Locations Chart can be found on their website: [www.hagerco.com](http://www.hagerco.com).

- A. Install hinges to standard hardware location dimensions in accordance with Hager Companies Standard Hardware Locations Chart.
- B. Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- C. Electric Hinges:
  - 1. Install mortar box in grout-filled frames for installation of electric hinges.
  - 2. Install electric hinges in accordance with electric door preparation information for Hager Roton Hinges in accordance with Hager Companies catalog information.

**3.04 ADJUSTING**

- A. Adjust door hinges for optimum, smooth operating condition.
- B. Lubricate hinges where directed by manufacturer.
- C. Adjust door hinges to provide tight fit at contact points with frames.

**3.05 CLEANUP**

- A. Proceed in accordance with Section [01 74 00 - Cleaning and Waste Management] [\_\_\_\_\_].
- B. Clean hinges with damp rag and approved nonabrasive cleaner, and polish hinges in accordance with manufacturer's instructions.
- C. Remove protective material from hinges where present.
- D. Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**