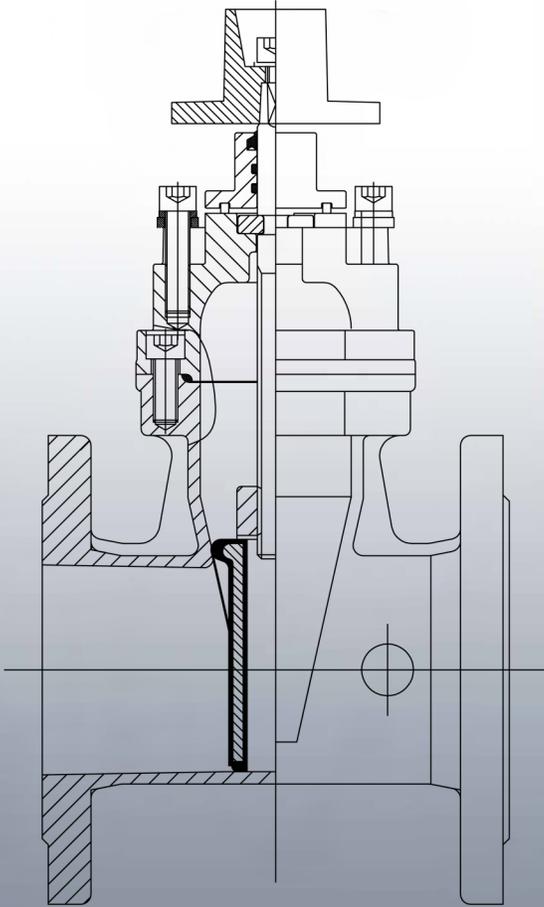
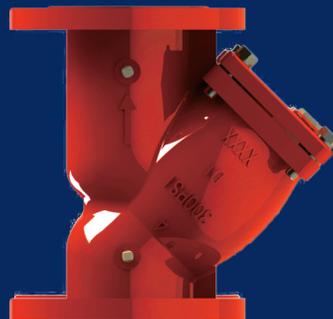


Century



Model 201
Resilient Seat NRS Gate Valve
Installation and Maintenance Manual



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Century

Operation and Installation Manual for the Century NRS Gate Valve Model 201

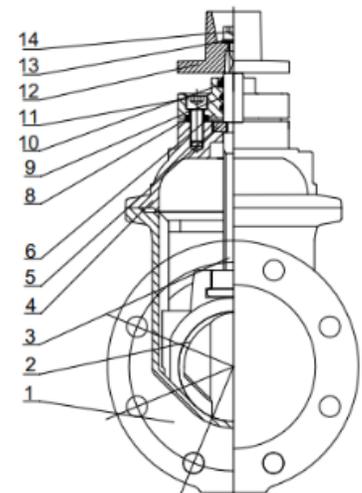
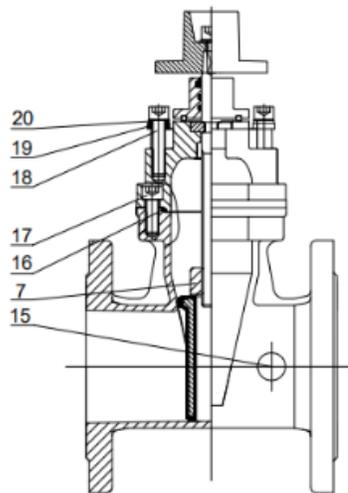
This document is an inspection, installation, and maintenance manual for the Century NRS Gate Valve, Model 201. It details the gate valve components, their specifications, and proper installation procedures to ensure longevity and functionality. The manual also provides step-by-step instructions for inspection, operation, adjustment, and routine maintenance.

Emphasis is placed on safety precautions during all procedures; this will ensure reliable operation and the longevity of the equipment.

Components:

The Century NRS Gate Valve is made of various parts.

Item	Name
1	Body
2	Wedge
3	Stem
4	Bonnet
5	Thrust Collar
6	Gland
7	Disc Nut
8	Seat Ring
9	O-Ring
10	Dust Proof Cover
11	Hex. Socket Cap Screw
12	Wrench Nut
13	Washer
14	Hex. Socket Cap Screw
15	Plug Boss
16	Gasket
17	Hex. Socket Cap Screw
18	Hex. Socket Cap Screw
19	Washer
20	Spring Washer



PRE-INSTALLATION INSPECTION

1. Proper Storage

If storage is required, keep the valve upright in a clean, dry environment. Prior to installation, inspect once again the unit to verify its condition has not changed.

2. Inspect for Shipping Damage

Visually inspect the entire valve assembly for any cracks, dents, or other damage sustained during transit. Subsequently, operate the Wrench Nut (Item 12) through its full range of motion in both directions to confirm smooth mechanical action and internal integrity.

3. Verify External Components

Confirm that all bolts, plugs, and other external hardware are secure and have not loosened during shipment.

Handling Notice:

This is a precision-engineered valve. To prevent damage and ensure proper function:

- Handle with care at all times to protect sealing surfaces and external components.
- Lift only by the valve Body (Item 1).
- Never lift, carry, or support the valve by the Stem (Item 3) or the Wrench Nut (Item 12). Applying force to these components can damage the operating mechanism and compromise valve alignment.

INSTALLATION GUIDELINES

1. Verify Valve Specifications

Before installation, confirm that the valve's model, size, pressure rating, and material specifications match the requirements listed in the system engineering plans. Installing an incorrect valve can lead to system failure.

2. Prepare Mating Surfaces

Thoroughly clean the valve flanges and both mating pipe flanges. Ensure all surfaces are completely free of dirt, rust, debris, and any foreign materials that could compromise the integrity of the seal.

3. Select and Inspect Gasket

Use only gaskets rated for the system's maximum operating pressure and temperature. Before installation, visually inspect the Gasket (Item 16) to confirm it is free from any defects, tears, or damage. Do not use a damaged gasket.

4. Align Flanges

Position the valve between the pipe flanges, ensuring the flange faces are parallel and concentric before making contact with the Gasket (Item 16). *(See AWWA C600: Figure 3, for mechanical-joint assembly).

Caution: Misalignment, especially when installing into existing pipework, can impose dangerous stress on the valve Body (Item 1) and lead to damage or failure.

5. Install and Tighten Bolting

Install all specified bolts and nuts. Tighten the bolts incrementally using a star or crisscross pattern to ensure uniform pressure on the gasket. Repeat the tightening sequence until all bolts have reached their required torque.

6. Perform Post-Installation Flushing

After completing the mechanical installation and before pressurizing the system, thoroughly flush the interior of the valve and piping to remove all installation debris.

OPERATING

1. Opening Procedure

To open the valve, rotate the Wrench Nut (Item 12) counterclockwise until it reaches a firm mechanical stop. No additional force is required. It is advantageous to then turn the wrench nut clockwise approximately one-half turn. This practice prevents thermal binding and eases future operation.

2. Closing Procedure

To close the valve, rotate the Wrench Nut (Item 12) clockwise until it reaches a firm mechanical stop.

3. Operational and Safety Notices

- **Prohibited Practices:** Never use extension bars or other leverage devices on the operating wrench. Applying excessive force can damage the operating Stem (Item 3) and internal valve components.
- **For OPEN/SHUT Service Only:** This valve is designed exclusively for on/off service and must be used in either the fully 'OPEN' or fully 'SHUT' position. Do not use this valve for regulating or throttling flow, as this will cause premature wear and damage to the Wedge (Item 2) and Seat Ring (Item 8).
- **Thermal Effects:** Be aware that significant temperature changes can affect the force required to operate the valve. A valve may become tight due to thermal expansion or contraction.
- **Personal Protective Equipment:** Operators must wear suitable hand protection when operating the valve in extreme temperature environments.

MAINTAINANCE

1. Pre-Maintenance Safety Requirements

Before commencing any maintenance activity, the following prerequisites must be met:

- **System Depressurization:** The valve and associated piping must be fully depressurized and allowed to return to ambient temperature.
- **Risk Assessment:** A comprehensive risk assessment must be completed.
- **Tool Selection:** Use only correct, well-maintained tools suitable for the task.
- **Hot Work Permit:** If applicable, a hot work permit is required before using tools that could generate sparks in a hazardous atmosphere.

2. Gland Packing Adjustment

If a leak is observed from the Stem (Item 3) seal, the Gland (Item 6) packing may require adjustment.

- **Procedure:** Using the appropriate wrench, tighten the gland nuts evenly and gradually in a clockwise direction.
- **Completion:** Continue tightening in small increments until the leakage stops.

Warning: Do not over-tighten, as this can damage the packing and score the Stem (Item 3).

3. Corrosion and Wall Thickness Inspection

In systems where corrosion is a known risk, periodic inspection of the valve's wall thickness is mandatory.

- **Inspection Method:** This check requires either removing the valve from the pipeline or removing the Bonnet (Item 4) while the system is fully depressurized.
- **Replacement Criteria:** Measure the wall thickness of the Body (Item 1) and Bonnet (Item 4). If measurements indicate a material loss of 25% or more from the original specified thickness, the entire valve must be removed from service and replaced immediately.

By following these maintenance steps, your valve will remain in proper working condition and ready to provide service when needed most.

Please contact us at sales@centuryvalves.com for all your valve needs.