PIP PNSMV053
Nickel and Nickel Alloy
Gate Valve Descriptions
PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

This Practice is subject to revision at any time.

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# PIP PNSMV053

## Nickel and Nickel Alloy Gate Valve Descriptions

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1. Introduction

1.1 Purpose
This Practice provides requirements for suppliers providing nickel and nickel alloy gate valves included in PIP Piping Line Class Material Specifications.

1.2 Scope
This Practice describes the requirements for nickel and nickel alloy gate valves.

2. References
Applicable parts of the following Practice shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles will be used herein where appropriate.

2.1 Process Industry Practices (PIP)
– PIP PNCM0004 - Valve Commodity Codes Designator System

3. Valve Designation System

3.1 For a full explanation of the format used to structure the valve numbers listed within this Practice, refer to PIP PNCM0004.

3.2 This Practice provides descriptions for gate valves. Therefore, the first two characters in the valve numbers are GA.

3.3 The valves listed in Section 5 and Section 6 of this Practice are sorted by the unique valve number designation in ascending alphanumeric sequence (e.g., GA01NU500, GA03NU500).

4. Notes

4.1 Occasionally, valve size ranges listed in this Practice are broader than the size ranges shown for the same valves on a given piping line class material specification. While the “most common practice” has been used to specify valve size ranges on line class specifications, a purchaser may need to utilize a valve in a size outside this “common practice” choice. Thus, for reference purposes, the full size range for which a given valve is typically manufactured is shown in this Practice.

4.2 Requirements for gear operators for gate valves will not be specified in piping line specifications or valve specifications. Purchasers shall define the requirements for gear operators in their specifications.

4.3 If fluids can be trapped (e.g., in double-seated valves) and subjected to heating and subsequent expansion, means of pressure relief should be considered to avoid excessive pressure build-up.
5. Cross Reference

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6. Valve Descriptions

Description of GATE Valve (GA01NM500):
- Type: GATE
- Valve Size: NPS 1/2 -to- NPS 8
- Class: 150
- Ends: FLANGED RF
- Body: ALLOY C (ASTM A494 - CW-12MW)
- Bonnet: ALLOY C (ASTM A494 - CW-12MW)
- Trim: ALLOY C or ALLOY C276
- Wedge Type: SOLID (NPS 1/2 -to- NPS 2), FLEXIBLE (NPS 3 and greater)
- Bonnet Type: BOLTED
- Bore-Port: FULL
- Stem Design: OSEY
- Operation: HANDWHEEL
- Stem-Packing: PTFE
- Body-Bonnet Gaskets: PTFE
- Body-Bonnet Bolting: BOLTS: MFG STD; NUTS: MFG STD

The standards are:
- DESIGN: ASME B16.34
- ENDS: ASME B16.5
- RATING: ASME B16.34
- TESTING: API 598
- DIMENSIONAL: ASME B16.10
Description of GATE Valve (GA01MO501):
Type:............................ GATE
Valve Size:.................... NPS 1/2 -to- NPS 8
Class:......................... 150
Ends:.......................... FLANGED RF
Body:.......................... ALLOY C (ASTM A494 - CW-12MN)
Bonnet:......................... ALLOY C (ASTM A494 - CW-12MN)
Trim:.......................... ALLOY C or ALLOY C276
Wedge Type:................... SOLID (NPS 1/2 -to- NPS 2), FLEXIBLE (NPS 3 and greater)
Bonnet Type:................... BOLTED
Bore-Port:..................... FULL
Stem Design:.................. OS&Y
Operation:..................... HANDWHEEL
Stem-Packing:............... FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED
Body-Bonnet Gaskets:....... ALLOY C/GRAPHITE
Body-Bonnet Bolting:........ BOLTS: MFG STD
NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.5
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - ASME B16.10

Description of GATE Valve (GA01NM200):
Type:............................ GATE
Valve Size:.................... NPS 1/2 -to- NPS 2
Class:......................... 150
Ends:.......................... T/SW
Body:.......................... ALLOY 400 (ASTM A494 - M-35-1)
Bonnet:......................... ALLOY 400 (ASTM A494 - M-35-1)
Trim:.......................... API 602 TRIM 11
Wedge Type:................... SOLID
Bonnet Type:................... BOLTED
Bore-Port:..................... STANDARD
Stem Design:.................. OS&Y
Operation:..................... HANDWHEEL
Stem-Packing:............... FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED
Body-Bonnet Gaskets:....... ALLOY 400/GRAPHITE
Body-Bonnet Bolting:........ BOLTS: MFG STD
NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - SW: ASME B16.11, THD: ASME B1.20.1
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - MFG STD

Description of GATE Valve (GA01NM300):
Type:............................ GATE
Valve Size:.................... NPS 1/2 -to- NPS 2
Class:......................... 150
Ends:.......................... SW
Body:.......................... ALLOY 400 (ASTM A494 - M-35-1)
Bonnet:......................... ALLOY 400 (ASTM A494 - M-35-1)
Trim:.......................... API 602 TRIM 11
Wedge Type:................... SOLID
Bonnet Type:................... BOLTED
Bore-Port:..................... STANDARD
Stem Design:.................. OS&Y
Operation:..................... HANDWHEEL
Stem-Packing:............... FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED
Body-Bonnet Gaskets:....... ALLOY 400/GRAPHITE
Body-Bonnet Bolting:........ BOLTS: MFG STD
NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.11
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - MFG STD
Description of GATE Valve (GA01NM500):

Type: GATE
Valve Size: NPS 1/2 to NPS 24
Class: 150
Ends: FLANGED RF
Body: ALLOY 400 (ASTM A494 - M-35-1)
Bonnet: ALLOY 400 (ASTM A494 - M-35-1)
Trim: API 600 TRIM 11

Wedge Type: SOLID (NPS 1/2 to NPS 2), FLEXIBLE (NPS 3 and greater)
Bonnet Type: BOLTED
Bore-Port: FULL
Stem Design: OS&Y
Operation: HANDWHEEL
Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED

Body-Bonnet Gaskets: ALLOY 400/GRAPHITE
Body-Bonnet Bolting: BOLTS: MFG STD
NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.5
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - ASME B16.10

Description of GATE Valve (GA01NM501):

Type: GATE
Valve Size: NPS 1/2 to NPS 24
Class: 150
Ends: FLANGED RF
Body: ALLOY 400 (ASTM A494 - M-35-1)
Bonnet: ALLOY 400 (ASTM A494 - M-35-1)
Trim: API 600 TRIM 11

Wedge Type: SOLID (NPS 1/2 to NPS 2), FLEXIBLE (NPS 3 and greater)
Bonnet Type: BOLTED
Bore-Port: FULL
Stem Design: OS&Y
Operation: HANDWHEEL
Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED

Body-Bonnet Gaskets: ALLOY 400/GRAPHITE
Body-Bonnet Bolting: BOLTS: MFG STD
NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.5
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - ASME B16.10

Description of GATE Valve (GA01NU500):

Type: GATE
Valve Size: NPS 1/2 to NPS 12
Class: 150
Ends: FLANGED RF
Body: ALLOY 20 (ASTM A351 - CN7M)
Bonnet: ALLOY 20 (ASTM A351 - CN7M)
Trim: API 600 TRIM 13

Wedge Type: SOLID (NPS 1/2 to NPS 2), FLEXIBLE (NPS 3 and greater)
Bonnet Type: BOLTED
Bore-Port: FULL
Stem Design: OS&Y
Operation: HANDWHEEL
Stem-Packing: PTFE
Body-Bonnet Gaskets: PTFE
Body-Bonnet Bolting: BOLTS: MFG STD
NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.5
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - ASME B16.10
Description of GATE Valve (GA03NB500):

- Type: GATE
- Valve Size: NPS 1/2 -to- NPS 8
- Class: 300
- Ends: FLANGED RF
- Body: ALLOY B2 (ASTM A494 - N-12MV)
- Bonnet: ALLOY B2 (ASTM A494 - N-12MV)
- Trim: ALLOY B2
- Wedge Type: SOLID (NPS 1/2 -to- NPS 2), FLEXIBLE (NPS 3 and greater)
- Bonnet Type: BOLTED
- Bore-Port: FULL
- Stem Design: OS&Y
- Operation: HANDWHEEL
- Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED
- Body-Bonnet Gaskets: ALLOY B2/GRAPHITE
- Body-Bonnet Bolting: BOLTS: MFG STD
  NUTS: MFG STD
- The standards are:
  - DESIGN: ASME B16.34
  - ENDS: ASME B16.5
  - RATING: ASME B16.34
  - TESTING: API 598
  - DIMENSIONAL: ASME B16.10

Description of GATE Valve (GA03NC500):

- Type: GATE
- Valve Size: NPS 1/2 -to- NPS 8
- Class: 300
- Ends: FLANGED RF
- Body: ALLOY C (ASTM A494 - CW-12MW)
- Bonnet: ALLOY C (ASTM A494 - CW-12MW)
- Trim: ALLOY C or ALLOY C276
- Wedge Type: SOLID (NPS 1/2 -to- NPS 2), FLEXIBLE (NPS 3 and greater)
- Bonnet Type: BOLTED
- Bore-Port: FULL
- Stem Design: OS&Y
- Operation: HANDWHEEL
- Stem-Packing: PTFE
- Body-Bonnet Gaskets: PTFE
- Body-Bonnet Bolting: BOLTS: MFG STD
  NUTS: MFG STD
- The standards are:
  - DESIGN: ASME B16.34
  - ENDS: ASME B16.5
  - RATING: ASME B16.34
  - TESTING: API 598
  - DIMENSIONAL: ASME B16.10

Description of GATE Valve (GA03NC501):

- Type: GATE
- Valve Size: NPS 1/2 -to- NPS 8
- Class: 300
- Ends: FLANGED RF
- Body: ALLOY C (ASTM A494 - CW-12MW)
- Bonnet: ALLOY C (ASTM A494 - CW-12MW)
- Trim: ALLOY C or ALLOY C276
- Wedge Type: SOLID (NPS 1/2 -to- NPS 2), FLEXIBLE (NPS 3 and greater)
- Bonnet Type: BOLTED
- Bore-Port: FULL
- Stem Design: OS&Y
- Operation: HANDWHEEL
- Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED
- Body-Bonnet Gaskets: ALLOY C/GRAPHITE
- Body-Bonnet Bolting: BOLTS: MFG STD
  NUTS: MFG STD
- The standards are:
  - DESIGN: ASME B16.34
  - ENDS: ASME B16.5
  - RATING: ASME B16.34
  - TESTING: API 598
  - DIMENSIONAL: ASME B16.10
Description of GATE Valve (GA03NM200):

Type: GATE
Valve Size: NPS 1/2 -to- NPS 2
Class: 300

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<td>ALLOY 400 (ASTM A494 - M-35-1)</td>
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<td>OS&amp;Y</td>
<td>HANDWHEEL</td>
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Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED

Body-Bonnet Gaskets: ALLOY 400/GRAPHITE
Body-Bonnet Bolting: BOLTS: MFG STD

NUTS: MFG STD

The standards are:
- DESIGN - ASME B16.34
- ENDS - SW: ASME B16.11, THD: ASME B1.20.1
- RATING - ASME B16.34
- TESTING - API 598
- DIMENSIONAL - MFG STD

Description of GATE Valve (GA03NM300):

Type: GATE
Valve Size: NPS 1/2 -to- NPS 2
Class: 300

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Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED

Body-Bonnet Gaskets: ALLOY 400/GRAPHITE
Body-Bonnet Bolting: BOLTS: MFG STD

NUTS: MFG STD

The standards are:
- DESIGN - ASME B16.34
- ENDS - ASME B16.11
- RATING - ASME B16.34
- TESTING - API 598
- DIMENSIONAL - MFG STD

Description of GATE Valve (GA03NM500):

Type: GATE
Valve Size: NPS 1/2 -to- NPS 24
Class: 300

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<td>HANDWHEEL</td>
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Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED

Body-Bonnet Gaskets: ALLOY 400/GRAPHITE
Body-Bonnet Bolting: BOLTS: MFG STD

NUTS: MFG STD

The standards are:
- DESIGN - ASME B16.34
- ENDS - ASME B16.5
- RATING - ASME B16.34
- TESTING - API 598
- DIMENSIONAL - ASME B16.10
Description of GATE Valve (GA03NM501):

Type: GATE
Valve Size: NPS 1/2 -to- NPS 24
Class: 300
Ends: FLANGED RF
Body: ALLOY 400 (ASTM A494 - M-35-1)
Bonnet: ALLOY 400 (ASTM A494 - M-35-1)
Trim: API 600 TRIM 11
Wedge Type: SOLID (NPS 1/2 -to- NPS 2) or FLEXIBLE (NPS 3 and greater)
Bonnet Type: BOLTED
Bore-Port: FULL
Stem Design: OS&Y
Operation: HANDWHEEL
Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED
Body-Bonnet Gaskets: ALLOY 400/GRAPHITE
Body-Bonnet Bolting: BOLTS: MFG STD
                          NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.5
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - ASME B16.10
CLEANING - OXYGEN CLEANING in accordance with CGA C-4.1 and G-4.4/ASTM G-93

Description of GATE Valve (GA03NM500):

Type: GATE
Valve Size: NPS 1/2 -to- NPS 12
Class: 300
Ends: FLANGED RF
Body: ALLOY 20 (ASTM A351 - CN7M)
Bonnet: ALLOY 20 (ASTM A351 - CN7M)
Trim: API 600 TRIM 13
Wedge Type: SOLID (NPS 1/2 -to- NPS 2), FLEXIBLE (NPS 3 and greater)
Bonnet Type: BOLTED
Bore-Port: FULL
Stem Design: OS&Y
Operation: HANDWHEEL
Stem-Packing: PTFE
Body-Bonnet Gaskets: PTFE
Body-Bonnet Bolting: BOLTS: MFG STD
                          NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.5
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - ASME B16.10

Description of GATE Valve (GA03NM000):

Type: GATE
Valve Size: NPS 1/4 -to- NPS 3/4
Class: 600
Ends: THD
Body: ALLOY 400 (ASTM B564 - UNS N04400 or A494 - M-35-1)
Bonnet: ALLOY 400 (ASTM B564 - UNS N04400 or A494 - M-35-1)
Trim: API 602 TRIM 9
Wedge Type: SOLID
Bonnet Type: BOLTED
Bore-Port: STANDARD
Stem Design: OS&Y
Operation: HANDWHEEL
Stem-Packing: FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED
Body-Bonnet Gaskets: ALLOY 400/GRAPHITE
Body-Bonnet Bolting: BOLTS: MFG STD
                          NUTS: MFG STD

The standards are:
DESIGN - ASME B16.34
ENDS - ASME B16.5
RATING - ASME B16.34
TESTING - API 598
DIMENSIONAL - MFG STD
### Description of GATE Valve (GA06NM001):

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<td>Body-Bonnet Bolting</td>
<td>BOLTS: MFG STD</td>
</tr>
<tr>
<td></td>
<td>NUTS: MFG STD</td>
</tr>
</tbody>
</table>

The standards are:

- DESIGN - ASME B16.34
- ENDS - ASME B1.20.1
- RATING - ASME B16.34
- TESTING - API 598
- DIMENSIONAL - MFG STD

### Description of GATE Valve (GA06NM501):

<table>
<thead>
<tr>
<th>Type</th>
<th>GATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve Size</td>
<td>NPS 1/2 - to - NPS 24</td>
</tr>
<tr>
<td>Class</td>
<td>600</td>
</tr>
<tr>
<td>Ends</td>
<td>FLANGED RF</td>
</tr>
<tr>
<td>Body</td>
<td>ALLOY 400 (ASTM A494 - M-35-1)</td>
</tr>
<tr>
<td>Bonnet</td>
<td>ALLOY 400 (ASTM A494 - M-35-1)</td>
</tr>
<tr>
<td>Trim</td>
<td>API 600 TRIM 11</td>
</tr>
<tr>
<td>Wedge Type</td>
<td>SOLID (NPS 1/2 - to - NPS 2), FLEXIBLE (NPS 3 and greater)</td>
</tr>
<tr>
<td>Bonnet Type</td>
<td>BOLTED</td>
</tr>
<tr>
<td>Bore-Port</td>
<td>FULL</td>
</tr>
<tr>
<td>Stem Design</td>
<td>OS&amp;Y</td>
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<tr>
<td>Operation</td>
<td>HANDWHEEL</td>
</tr>
<tr>
<td>Stem-Packing</td>
<td>FLEXIBLE GRAPHITE, ANTI-EXTRUSION RINGS and CORROSION INHIBITED</td>
</tr>
<tr>
<td>Body-Bonnet Gaskets</td>
<td>ALLOY 400/GRAPHITE</td>
</tr>
<tr>
<td>Body-Bonnet Bolting</td>
<td>BOLTS: MFG STD</td>
</tr>
<tr>
<td></td>
<td>NUTS: MFG STD</td>
</tr>
</tbody>
</table>

The standards are:

- DESIGN - ASME B16.34
- ENDS - ASME B16.5
- RATING - ASME B16.34
- TESTING - API 598
- DIMENSIONAL - ASME B16.10
- CLEANING - OXYGEN CLEANING in accordance with OSA C-4.1 and O-4.4/ASTM G-93