PIP PN06SA0S04
Piping Material Specification 6SA0S04
Class 600, 304/304L Stainless Steel, Socket Weld,
C.A. - None, Cryogenic Process
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### PRESSURE - TEMPERATURE RATINGS – METRIC UNITS

For NPS 1/2 through NPS 6 (Full flange ratings per ASME B16.5, Table II-2.1)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NOTES</th>
<th>NPS</th>
<th>SCH/RAT</th>
<th>ENDS</th>
<th>DESCRIPTION</th>
<th>USER CODES</th>
</tr>
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<tbody>
<tr>
<td>PIPE</td>
<td>01</td>
<td>1/2</td>
<td>40S</td>
<td></td>
<td>SS, EF, ASTM A312-T304/304L w/ 100% RT (E₁ = 1.00) , cryogenic</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>148</td>
<td>8 – 24</td>
<td>Calc</td>
<td>SS, EF, ASTM A312-T304/304L w/ 100% RT (E₁ = 1.00), cryogenic</td>
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#### NIPPLES

- Branch
  - 1/2 – 1-1/2 40S SS, EF, ASTM A312-T304/304L w/ 100% RT (E₁ = 1.00), cryogenic
- Swage (CONC)
  - 1/2 – 1-1/2 40S SS, ASTM A403-WP304-S/304L-S, MSS SP-95
- Swage (ECC)
  - 1/2 – 1-1/2 40S SS, ASTM A403-WP304-S/304L-S, MSS SP-95

#### FITTINGS

- Sockolet
  - 1/2 – 1-1/2 Class 3000 Weld SS, ASTM A182-F304/304L, MSS SP-97
- SW Latrolet
  - 1/2 – 1-1/2 Class 3000 Weld SS, ASTM A182-F304/304L, MSS SP-97
- SW Elbowlet 170
  - 1/2 – 1-1/2 Class 3000 Weld SS, ASTM A182-F304/304L
- 90 ELL
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, ASME B16.11
- 45 ELL
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, ASME B16.11
- Tee
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, ASME B16.11
- Plug 53
  - 1/2 – 2 PE SS, ASTM A182-F304/304L, round head, ASME B16.11
- Tee (RED)
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, ASME B16.11
- Coupling
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, ASME B16.11
- Coupling (RED)
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, ASME B16.11
- Cap
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, ASME B16.11
- Reducing Insert
  - 1/2 – 1-1/2 Class 3000 SW SS, ASTM A182-F304/304L, MSS SP-79
- Reducer (CONC)
  - 2 – 24 Weld SS, ASTM A403-WP304-WX/304L-WX, ASME B16.9, cryogenic
- Reducer (ECC)
  - 2 – 24 Weld SS, ASTM A403-WP304-WX/304L-WX, ASME B16.9, cryogenic
- Weldolet
  - 2 – 20 Weld SS, ASTM A182-F304/304L, MSS SP-97
- 90 LR ELL
  - 2 – 24 Weld SS, ASTM A403-WP304-WX/304L-WX, ASME B16.9, cryogenic
- 45 LR ELL
  - 2 – 24 Weld SS, ASTM A403-WP304-WX/304L-WX, ASME B16.9, cryogenic
- Tee
  - 2 – 24 Weld SS, ASTM A403-WP304-WX/304L-WX, ASME B16.9, cryogenic
- Cap
  - 2 – 24 Weld SS, ASTM A403-WP304-WX/304L-WX, ASME B16.9, cryogenic

#### VALVES

- Gate 45
  - 1/2 – 2 Class 800 SW 316/316L SS body, trim 12 GA08SD311
- Gate 45
  - 1/2 – 2 Class 600 RF 316 SS body, trim 12 GA06ST511
- Globe
  - 1/2 – 2 Class 800 SW 316/316L SS body, trim 12 GLO8SD311
- Globe
  - 3 – 12 Class 600 RF 316 SS body, trim 12 GLO6ST511
- Dual Plt Check 26, 63
  - 12 – 24 Class 600 RF 316 SS body w/ 316 SS trim, double flanged CD06ST511
- Swing Check 62
  - 1/2 – 2 Class 800 SW 316/316L SS body w/ 316 SS trim, HF ST CS08SD311
- Swing Check 62
  - 3 – 24 Class 600 RF 316 SS body w/ 316 SS trim, HF ST CS06ST511
- Ball 09, 45
  - 1/2 – 2 Class 600 SW 316L SS body w/ 316 SS trim, R-PTFE ST BA06SU311
- Ball 09, 45
  - 3 – 4 Class 600 RF 316 SS body w/ 316 SS trim, R-PTFE ST BA06ST514
- Ball 08, 09, 45
  - 3 Class 600 RF 316 SS body w/ 316 SS trim, R-PTFE ST, FP BA06ST516
- Ball 09, 45
  - 6 Class 600 RF 316 SS body w/ 316 SS trim, R-PTFE ST, GO BA06ST515
- Ball 08, 09, 45
  - 4 – 6 Class 600 RF 316 SS body w/ 316 SS trim, R-PTFE ST, GO, FP BA06ST517
- Triple Offset Butterfly
  - 8 – 24 Class 600 RF 316 SS body w/ 316 SS trim, HF ST, GO, double flanged BF06ST510
### FLANGES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NOTES</th>
<th>NPS</th>
<th>SCH/RAT</th>
<th>ENDS</th>
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<tr>
<td>Socketweld</td>
<td>02</td>
<td>1/2 – 1-1/2</td>
<td>Class 600</td>
<td>RF</td>
<td>SS, ASTM A182-F304/304L, ASME B16.5</td>
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<td>Blind</td>
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<td>Class 600</td>
<td>RF</td>
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<td>Weldneck</td>
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<td>Class 600</td>
<td>RF</td>
<td>SS, ASTM A182-F304/304L, ASME B16.5</td>
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<tr>
<td>Pair WN Orifice</td>
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<td>2 – 24</td>
<td>Class 600</td>
<td>RF</td>
<td>SS, ASTM A182-F304/304L, ASME B16.36, SW taps</td>
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### GASKETS

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<th>ITEM</th>
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<td>1/2 – 24</td>
<td>Class 600</td>
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<td>Spiral wound type, 304 SS winding, w/ flexible graphite filler, w/ 304 SS inner ring and CS outer ring, ASME B16.20</td>
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### BOLTING

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<tr>
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<td>Stud Bolts</td>
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<td>ASTM A320, GR B8 CL 2 S3 stud, w/ 2 heavy hex nuts, ASTM A194, GR 8</td>
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#### 90° BRANCH CONNECTION

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<tr>
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<td>S</td>
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**NOTES:**

01 If a pipe schedule is shown under "SCH/RAT," it shall be adequate for the full flange rating. If "CALC" is shown, the pressure limit may be lower than full flange rating.

02 All butt-welded component thicknesses shall match the pipe thickness.

04 Requirements for low-temperature and cryogenic service shall be in accordance with ASME B31.3, Paragraph 323.2.2 and Table 323.2.2.

08 Full-port valves shall be used if indicated on the P&ID.

09 Pressure and temperature rating can be limited by certain components permitted by this Practice. Manufacturer's recommended pressure-temperature restrictions shall be consulted.

26 These check valves shall be used only if indicated on the P&ID.

45 Ball valves and gate valves have a cavity relief; therefore, these valves shall be installed with the cavity vent (as indicated on the valve) on the high-pressure side. The high-pressure side shall be indicated on the P&ID.

53 To be used where required for pipe supports, dummy legs and unused socketweld taps.

62 These check valves shall be installed in a horizontal position with cover up or in a vertical position with upward flow.

63 These check valves shall be installed in a horizontal position with hinge pin vertical or in a vertical position with upward flow.

148 If pipe wall thickness is greater than schedule 80S, and the nominal pipe is greater than NPS 12, ASTM A358 pipe material shall be considered.

170 These items should be qualified for use in this specification in accordance with ASME B31.3, Paragraph 304.7.2.

**REFERENCES:**

- Process Industry Practices (PIP)
  - PIP PNF0200 - Vents, Drains, and Instrument Connection Details
  - PIP PNSMV023 - Stainless Gate Valve Descriptions
  - PIP PNSMV024 - Stainless Globe Valve Descriptions
  - PIP PNSMV025 - Stainless Check Valve Descriptions
  - PIP PNSMV026 - Stainless Ball Valve Descriptions
  - PIP PNSMV027 - Stainless Butterfly Valve Descriptions