Forged steel valves
Power generation / petrochemical industries

Medium & high-pressure valves
in accordance with ASME, API, BS and DIN
**Technical benefits**

**Handwheel**
- Ergonomic design and sized for smooth operating with a reduced closing force.

**Integral bonnet design**
- Eliminates the risk of leakage across body-to-bonnet connections.
- Provides a more rigid construction.
- Eliminates body welds or threading on pressure-containing parts.
- Enables easy in-line maintenance, reducing overall costs.

**Removable backseat**
- Stem, disc and packing are easily accessible and removable in-line.
- Repairable and repackable within minutes.
- Optional screwed-in backseat.

**Solid investment cast seat ring**
- High temperature vacuum brazed in.
- Homogeneous stellite with a thickness 2 to 3 times that of conventional designs.
- Stellite thickness permits repeated refinishing for a longer service life and minimised maintenance and repair costs.
- Extra wear-resistance.
- Eliminates thermal cracking.
- No need for disassembly at welding or post weld heat treatment.

**Diffusion galvanized upper parts**
- Provides additional corrosion resistance for yoke, gland flange and gland bolting.
- Resistant up to 672°C (1240°F).
- No risk of liquid metal embrittlement.

**Gland bolting connected to valve-body**
- Provides additional protection against the yoke unscrewing.
- Provides for anti-blow out design of stem.

**Solid investment cast stellite disc**
- Homogeneous stellite with a material reserve 2 to 3 times that of conventional designs.
- Permits repeated refinishing for longer service life and minimised maintenance and repair costs.
- Extra wear-resistance.
- Body-guided over the full stroke.

**Modular valve design**
- Provides optimal interchangeability of valves and spare parts.

**Forged steel valve body**
- Sufficient wall thickness for machining integral clampseal connections.
FEATURES

DETAILED FEATURES REGARDING THE VALVE DESIGN AND MATERIALS USED HAVE BEEN INDICATED ON THE VALVE SPECIFIC DATA SHEETS.

VALVES CAN BE FITTED WITH ALL TYPES AND MAKES OF ACTUATORS.

PNEUMATIC ACTUATORS CAN BE DIAPHRAGM AS WELL AS PISTON TYPE ACTUATORS.

ACTUATORS WILL BE ACCURATELY SIZED AND EACH AND EVERY UNIT WILL BE FUNCTIONALLY TESTED BY HP VALVES.

BECAUSE OF THE RIGID VALVE CONSTRUCTION, VALVES CAN BE INSTALLED BOTH IN HORIZONTAL AND VERTICAL LINES.

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>D</th>
<th>VALVE WEIGHT KG</th>
<th>D</th>
<th>VALVE WEIGHT KG</th>
<th>D</th>
<th>VALVE WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>205 (8.07)</td>
<td>5.0 (11.0 LB)</td>
<td>205 (8.07)</td>
<td>4.6 (10.1 LB)</td>
<td>223 (8.78)</td>
<td>4.6 (10.1 LB)</td>
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<td>15 (1/2&quot;)</td>
<td>205 (8.07)</td>
<td>4.9 (10.8 LB)</td>
<td>205 (8.07)</td>
<td>4.5 (9.9 LB)</td>
<td>223 (8.78)</td>
<td>4.5 (9.9 LB)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>220 (8.66)</td>
<td>8.2 (18.1 LB)</td>
<td>220 (8.66)</td>
<td>7.4 (16.3 LB)</td>
<td>235 (9.25)</td>
<td>6.7 (14.8 LB)</td>
</tr>
<tr>
<td>25 (&quot;&quot;)</td>
<td>220 (8.66)</td>
<td>8.0 (17.6 LB)</td>
<td>220 (8.66)</td>
<td>7.2 (15.9 LB)</td>
<td>235 (9.25)</td>
<td>6.5 (14.3 LB)</td>
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<tr>
<td>32 (1-1/4&quot;)</td>
<td>350 (13.78)</td>
<td>30.3 (66.8 LB)</td>
<td>350 (13.78)</td>
<td>27.3 (60.2 LB)</td>
<td>369 (14.53)</td>
<td>28.2 (62.2 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>350 (13.78)</td>
<td>30.3 (66.8 LB)</td>
<td>350 (13.78)</td>
<td>27.3 (60.2 LB)</td>
<td>369 (14.53)</td>
<td>28.2 (62.2 LB)</td>
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<tr>
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<td>28.8 (63.5 LB)</td>
<td>350 (13.78)</td>
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<td>369 (14.53)</td>
<td>26.9 (59.3 LB)</td>
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<tr>
<td>65 (2-1/2&quot;)</td>
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<td>-</td>
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<tr>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>530 (20.87)</td>
<td>87.0 (191.8 LB)</td>
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<tr>
<td>100 (4&quot;)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>530 (20.87)</td>
<td>83.0 (183.0 LB)</td>
</tr>
</tbody>
</table>

PATTERN
STRAIGHT (FIG 02.1) SHORT (FIG 02.6) Y (FIG 02.2)
FORGED STEEL GLOBE VALVES, BONNETLESS - FIG 01.1

**STANDARDS**

- **DESIGN**: ASME B16.34 - BS-EN 15761 - DIN 3840 - EN 12516
- **BUTTWELDING ENDS**: ASME B16.25 - DIN-EN 9692-1 - EN 12627
- **SOCKET WELDING ENDS**: ASME B16.11 - EN 12760
- **OTHER END CONNECTIONS**: API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
- **END-TO-END DIMENSIONS**: MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
- **PRESSURE TESTING**: ASME B16.34 - API 598 - DIN 3230 - EN 12266

**FEATURES**

- **CONSTRUCTION**: INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT
- **SEAT RING**: HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
- **OPTIONS**: SCREW-DOWN NON-RETURN VALVE AND/OR ANGLE PATTERN WITH 75 MM (≤ 1") / 125 MM (≤ 2") CENTRE-TO-END
- **OPERATION**: OPTIONAL NON-ROTATING ONE-PIECE STEM/DISC FOR ELECTRIC OR PNEUMATIC ACTUATOR (FIG 02.1)
- **ACCESSORIES**: LIMIT SWITCHES - LOCKING DEVICE - POSITION INDICATOR - LIVE LOADED GLAND (OTHERS ON REQUEST)

**MATERIALS**

- **BODY**: SA105N (1.0460) - SA182-F12 (13CrMo4.5) - SA182-F22 (10CrMo9.10) - SA182-F91 (1.4903) (OTHERS ON REQUEST)
- **TRIM**: 17CR (1.4122) / STELLITE - F316 (1.4401) / STELLITE - 431 (1.4057) (OTHERS ON REQUEST)
- **STEM PACKING**: GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

**MAIN DIMENSIONS IN MM (INCH)**

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
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<td>7</td>
<td>0.28</td>
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</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>7</td>
<td>0.43</td>
<td>210 (8.27)</td>
<td>220 (8.66)</td>
<td>25 (0.98)</td>
<td>150 (5.91)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>16</td>
<td>0.63</td>
<td>230 (9.06)</td>
<td>278 (10.94)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>20</td>
<td>0.79</td>
<td>230 (9.06)</td>
<td>278 (10.94)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>300 (11.81)</td>
<td>450 (17.72)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>300 (11.81)</td>
<td>450 (17.72)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
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<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>40</td>
<td>1.57</td>
<td>300 (11.81)</td>
<td>450 (17.72)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
</tr>
</tbody>
</table>
FORGED STEEL Y-PATTERN GLOBE VALVES, BONNETLESS - FIG 01.2

STANDARDS

- DESIGN: ASME B16.34 - BS-EN 15761 - EN 12516
- BUTTWELDING ENDS: ASME B16.25 - DIN-EN 9692-1 - EN 12627
- SOCKET WELDING ENDS: ASME B16.11 - EN 12760
- OTHER END CONNECTIONS: API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
- END-TO-END DIMENSIONS: MANUFACTURER’S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
- PRESSURE TESTING: ASME B16.34 - API 598 - EN 3230 - EN 12266

MATERIALS

- 01 BODY: VARIOUS (SEE BELOW)
- 02 SEAT: STELLITE
- 03 DISC: STELLITE
- 04 LOOSE BACKSEAT: AISI 304
- 05 STEM PACKING: GRAPHITE
- 07 GLAND FLANGE: CARBON STEEL
- 08 GLAND: AISI 304
- 10 STEM: 17 CR (SEE BELOW)
- 12 YOKE: CARBON STEEL
- 13 YOKE SLEEVE: ALUMINIUM-BRONZE
- 14 HANDWHEEL: CARBON STEEL
- 21 NUT: STEEL ZINC PLATED
- 27 SPRING WASHER: STEEL ZINC PLATED
- 28 SPRING WASHER: STEEL ZINC PLATED
- 44 NAMEPLATE: ALUMINIUM
- 50 PIN: HARDENED STEEL

FEATURES

- DESIGN: CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
- SEAT RING: HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
- OPTIONS: ALSO IN SIZES EXCEEDING 2" (FIG 02.2) AND AS SCREW-DOWN NON-RETURN VALVE
- OPERATION: OPTIONAL NON-ROTATING ONE-PIECE STEM/DISC FOR ELECTRIC OR PNEUMATIC ACTUATOR (FIG 02.2)
- ACCESSORIES: LIMIT SWITCHES - LOCKING DEVICE - POSITION INDICATOR - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

- BODY: SA105N - SA182-F22 - SA182-F91 - SA182-F316(L) (OTHERS ON REQUEST)
- TRIM: 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
- STEM PACKING: GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>11</td>
<td>7</td>
<td>115</td>
<td>236</td>
<td>21</td>
<td>150</td>
<td>43.3</td>
<td>1.5</td>
<td>3.4 (7.5 LB)</td>
</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11</td>
<td>11</td>
<td>115</td>
<td>236</td>
<td>21</td>
<td>150</td>
<td>43.3</td>
<td>2.7</td>
<td>3.3 (7.3 LB)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18</td>
<td>16</td>
<td>140</td>
<td>291</td>
<td>29</td>
<td>200</td>
<td>51.5</td>
<td>8.0</td>
<td>5.9 (13.0 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>20</td>
<td>140</td>
<td>291</td>
<td>29</td>
<td>200</td>
<td>51.5</td>
<td>8.7</td>
<td>5.7 (12.6 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>30</td>
<td>245</td>
<td>469</td>
<td>50</td>
<td>350</td>
<td>85.0</td>
<td>34.4</td>
<td>28.9 (68.7 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>30</td>
<td>245</td>
<td>469</td>
<td>50</td>
<td>350</td>
<td>85.0</td>
<td>34.4</td>
<td>28.9 (68.7 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>40</td>
<td>245</td>
<td>469</td>
<td>50</td>
<td>350</td>
<td>85.0</td>
<td>44.2</td>
<td>27.6 (60.8 LB)</td>
</tr>
</tbody>
</table>

HP Valves Oldenzaal BV, P.O. Box 151, 7570 AD Oldenzaal, The Netherlands
Phone: +31 (0)541 519555, Fax: +31 (0)541 522045, E-mail: info@hpvalves.com
Website: www.hpvalves.com

Member of Indutrade AB

B03-P05 06-01
# FORGED STEEL GLOBE VALVES, ANGLE PATTERN, BONNETLESS - FIG 01.3

**ASME Class**: 1500 / 2500 (4500)  
**API Class**: 6.000 PSI (10.000 PSI)  
**DIN Class**: PN 160 - PN 640

## Standards
- **Design**: ASME B16.34 - BS 5352 - DIN 3840 - EN 12516  
- **Buttwelding Ends**: ASME B16.25 - DIN 2559 - EN 12627  
- **Socket Welding Ends**: ASME B16.11 - EN 12760  
- **Other End Connections**: API or NPT female threads / clamp connectors / flanged RTJ or RF  
- **End-to-End Dimensions**: Manufacturer’s standard (flanged valves acc. the relevant standard)  
- **Pressure Testing**: ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266

## Design
- **Construction**: Integral Bonnet (Bonnetless) and Loose Backseat  
- **Seat Ring**: High Temperature Vacuum Brazed in Seat Ring with Thickness > 5 MM (1/5")  
- **Options**: Screw-down Non-Return Valve  
- **Operation**: Optional Non-Rotating One-Piece Stem/Disc for Electric or Pneumatic Actuator (Fig 02.3)  
- **Accessories**: Limit Switches - Locking Device - Position Indicator - Live Loaded Gland (Others on Request)

## Materials
- **Body**: SA182-F316(L) - SA350-LF2 - SA182-F92 - 16Mo3  
- **Trim**: 17CR/STELLITE - F316/STELLITE (Others on Request)  
- **Stem Packing**: Graphite with Integral or Stainless Steel Reinforced Anti Extrusion Rings

## Features
- **Nom. Size**: 15 (1/2")  
- **Dimensions in MM (INCH)**:

<table>
<thead>
<tr>
<th>Nom. Size</th>
<th>A (1/4&quot;)</th>
<th>B (3/16&quot;)</th>
<th>C (1/16&quot;)</th>
<th>D (1/32&quot;)</th>
<th>E (1/32&quot;)</th>
<th>F (1/32&quot;)</th>
<th>Cv</th>
<th>Weight KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>18 (0.71)</td>
<td>11 (0.43)</td>
<td>75 (2.95)</td>
<td>260 (10.24)</td>
<td>75 (2.95)</td>
<td>200 (7.87)</td>
<td>-</td>
<td>7.6 (16.8 LB)</td>
</tr>
<tr>
<td>20</td>
<td>18 (0.71)</td>
<td>15 (0.59)</td>
<td>75 (2.95)</td>
<td>260 (10.24)</td>
<td>75 (2.95)</td>
<td>200 (7.87)</td>
<td>-</td>
<td>7.4 (16.3 LB)</td>
</tr>
<tr>
<td>25</td>
<td>18 (0.71)</td>
<td>18 (0.71)</td>
<td>75 (2.95)</td>
<td>260 (10.24)</td>
<td>75 (2.95)</td>
<td>200 (7.87)</td>
<td>-</td>
<td>7.2 (15.9 LB)</td>
</tr>
<tr>
<td>32</td>
<td>36 (1.42)</td>
<td>28 (1.10)</td>
<td>175 (6.89)</td>
<td>430 (16.93)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>-</td>
<td>34.1 (75.2 LB)</td>
</tr>
<tr>
<td>40</td>
<td>36 (1.42)</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>430 (16.93)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>-</td>
<td>32.9 (72.5 LB)</td>
</tr>
<tr>
<td>50</td>
<td>36 (1.42)</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>430 (16.93)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>-</td>
<td>32.9 (72.5 LB)</td>
</tr>
</tbody>
</table>

**HP Valves Oldenzaal BV**, P.O. Box 151, 7570 AD Oldenzaal, The Netherlands  
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Website: www.hpvalves.com  
Member of Indutrade AB
# FORGED STEEL GLOBE VALVES, ANGLE PATTERN, BONNETLESS - FIG 01.3

## Standards

<table>
<thead>
<tr>
<th>Design</th>
<th>ASME B16.34 - BS 5352 - DIN 3840 - EN 12516</th>
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<tbody>
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<td>Butt Welding</td>
<td>ASME B16.25 - DIN 2559 - EN 12627</td>
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<tr>
<td>Socket Welding</td>
<td>ASME B16.11 - EN 12760</td>
</tr>
<tr>
<td>Other End Connections</td>
<td>API or NPT female threads / clamp connectors / flanged RTJ or RF</td>
</tr>
<tr>
<td>End-to-End Dimensions</td>
<td>Manufacturer's standard (flanged valves acc. the relevant standard)</td>
</tr>
<tr>
<td>Pressure Testing</td>
<td>ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266</td>
</tr>
</tbody>
</table>

## Features

**Design**
- Construction: Integral Bonnet (Bonnetless) and Loose Backseat
- Seat Ring: High Temperature Vacuum Brazed in Seat Ring with Thickness ≥ 5 MM (1/5”)
- Options: Screw-Down Non-Return Valve
- Operation: Optional Non-Rotating One-Piece Stem/Disc for Electric or Pneumatic Actuator (Fig 02.3)

**Materials**
- Body: SA105N (1.0460) - SA182-F12 (13CrMo4.5) - SA182-F22 (10CrMo9.10) - SA182-F91 (1.4903) (Others on Request)
- Trim: 17CR/STELLITE - F316/STELLITE (Others on Request)
- Stem Packing: Graphite with Integral or Stainless Steel Reinforced Anti Extrusion Rings
- Loose Backseat: AISI 304
- Stem: 17 CR (See Below)
- Yoke: Carbon Steel
- Yoke Sleeve: Aluminium-Bronze
- Handwheel: Carbon Steel
- Nut: Steel Zinc Plated
- Spring Washer: Graphite with Integral or Stainless Steel Reinforced Anti Extrusion Rings
- Nameplate: Aluminium
- Pin: Hardened Steel

## Nominal Sizes

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>Body</th>
<th>Seat</th>
<th>Disc</th>
<th>Backseat</th>
<th>Stem Packing</th>
<th>Stem</th>
<th>Yoke</th>
<th>Yoke Sleeve</th>
<th>Handwheel</th>
<th>Nut</th>
<th>Spring Washer</th>
<th>Nameplate</th>
<th>Pin</th>
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</thead>
<tbody>
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<td>11.0</td>
<td>105.43</td>
<td>105.43</td>
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<td>7.9</td>
<td>7.8</td>
<td>34.1</td>
<td>32.9</td>
<td>8.0</td>
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<td>11.0</td>
<td>105.43</td>
<td>105.43</td>
<td>260.1024</td>
<td>105.43</td>
<td>200</td>
<td>8.0</td>
<td>7.9</td>
<td>7.8</td>
<td>34.1</td>
<td>32.9</td>
<td>8.0</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18.0</td>
<td>11.0</td>
<td>105.43</td>
<td>105.43</td>
<td>260.1024</td>
<td>105.43</td>
<td>200</td>
<td>8.0</td>
<td>7.9</td>
<td>7.8</td>
<td>34.1</td>
<td>32.9</td>
<td>8.0</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
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<td>175.689</td>
<td>175.689</td>
<td>430.1693</td>
<td>175.689</td>
<td>350</td>
<td>32.9</td>
<td>32.9</td>
<td>32.9</td>
<td>75.2</td>
<td>75.2</td>
<td>8.0</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36.14</td>
<td>36.14</td>
<td>175.689</td>
<td>175.689</td>
<td>430.1693</td>
<td>175.689</td>
<td>350</td>
<td>32.9</td>
<td>32.9</td>
<td>32.9</td>
<td>75.2</td>
<td>75.2</td>
<td>8.0</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36.14</td>
<td>36.14</td>
<td>175.689</td>
<td>175.689</td>
<td>430.1693</td>
<td>175.689</td>
<td>350</td>
<td>32.9</td>
<td>32.9</td>
<td>32.9</td>
<td>75.2</td>
<td>75.2</td>
<td>8.0</td>
</tr>
</tbody>
</table>

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FORGED STEEL GLOBE VALVES, BONNETLESS - FIG 01.6

ASME CLASS 1500 / 2500 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS
DESIGN ASME B16.34 - BS 5352 - (API 600) - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN 2559 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - BS 6755 - AS 598 - DIN 3320 - EN 12266

MATERIALS
01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
03 DISC STELLITE
04 LOOSE BACKSEAT AISI 304
05 STEM PACKING GRAPHITE
07 GLAND FLANGE CARBON STEEL
08 GLAND AISI 304
09 GLAND BOLT / NUT ASTM-A193-87 / ASTM-A194-2H
10 STEM 17 CR (SEE BELOW)
12 YOKE CARBON STEEL
13 YOKE SLEEVE ALUMINIUM-BRONZE
14 HANDWHEEL CARBON STEEL
21 NUT STEEL ZINC PLATED
27 SPRING WASHER STEEL ZINC PLATED
28 SPRING WASHER STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM
50 PIN HARDENED STEEL

FEATURES
DESIGN CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
OPERATION OPTIONAL NON-ROTATING ONE-PIECE STEM/DISC FOR ELECTRIC OR PNEUMATIC ACTUATOR (FIG 02.6)
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - POSITION INDICATOR - LIVE LOADED GLAND (OTHERS ON REQUEST)

OIL RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>11 (0.43)</td>
<td>7 (0.28)</td>
<td>132 (5.20)</td>
<td>220 (8.66)</td>
<td>25 (0.98)</td>
<td>150 (5.91)</td>
<td>1.3</td>
<td>3.5 (7.7 LB)</td>
</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11 (0.43)</td>
<td>11 (0.43)</td>
<td>132 (5.20)</td>
<td>220 (8.66)</td>
<td>25 (0.98)</td>
<td>150 (5.91)</td>
<td>2.2</td>
<td>3.4 (7.5 LB)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18 (0.71)</td>
<td>16 (0.63)</td>
<td>137 (5.39)</td>
<td>278 (10.94)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
<td>5.9</td>
<td>6.7 (14.8 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18 (0.71)</td>
<td>20 (0.79)</td>
<td>154 (6.06)</td>
<td>278 (10.94)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
<td>6.7</td>
<td>6.5 (14.3 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>192 (7.56)</td>
<td>450 (17.72)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>22.3</td>
<td>28.0 (61.7 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>192 (7.56)</td>
<td>450 (17.72)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>22.3</td>
<td>28.0 (61.7 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36 (1.42)</td>
<td>40 (1.57)</td>
<td>192 (7.56)</td>
<td>450 (17.72)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>26.1</td>
<td>26.7 (58.9 LB)</td>
</tr>
</tbody>
</table>

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Member of Indutrade AB
FORGED STEEL THROTTLE VALVES, BONNETLESS - FIG 02.1

ASME CLASS 1500 / 2500 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - BS-EN 15761 - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN-EN 9692-1 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - API 598 - DIN 3230 - EN 12266

FEATURES

CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5”)
PARABOLIC DISC AND/OR ANGLE PATTERN WITH 75 MM (≥ 1”) / 125 MM (≥ 2”) CENTRE-TO-END
HANDBOX - GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)
STAINLESS STEEL

MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
04 LOOSE BACKSEAT AISI 304
05 STEM PACKING GRAPHITE
07 GLAND / FLANGE AISI 304 / CARBON STEEL
09 GLAND BOLT / NUT ASTM-A193-B7 / ASTM-A194-2H
11 STEM / DISC 17 CR / STELLITED (SEE BELOW)
12 YOKE CARBON STEEL
13 YOKE SLEEVE ALUMINIUM-BRONZE
14 HANDBOX CARBON STEEL
15 POSITION INDICATOR 17 CR
23 PARALLEL KEY STAINLESS STEEL
25 SET SCREW STEEL ZINC PLATED
27 SPRINGWASHER STEEL ZINC PLATED
32 THIN NUT STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM

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Member of Indutrade AB
FORGED STEEL Y-PATTERN THROTTLE VALVES, BONNETLESS - FIG 02.2

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Website: www.hpvalves.com

STANDARDS

- **DESIGN**: ASME B16.34 - BS EN 15761 - EN 12516
- **BUTTWELDING ENDS**: ASME B16.25 - DIN EN 9692-1 - EN 12627
- **SOCKET WELDING ENDS**: ASME B16.11 - EN 12760
- **OTHER END CONNECTIONS**: API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
- **END-TO-END DIMENSIONS**: MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
- **PRESSURE TESTING**: ASME B16.34 - API 598 - DIN 3230 - EN 12266

FEATURES

- **CONSTRUCTION**: INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
- **SEAT RING**: HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
- **OPTIONS**: PARABOLIC DISC AND/OR ANGLE PATTERN WITH 75 MM (< 1") / 125 MM (< 2") CENTRE-TO-END
- **OPERATION**: HANDWHEEL - GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
- **ACCESSORIES**: LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

- **BODY**: SA105N - SA182-F22 - SA182-F91 - SA182-F316(L) (OTHERS ON REQUEST)
- **TRIM**: 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
- **STEM PACKING**: GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS
- **POSITION INDICATOR**: 17 CR
- **PARALLEL KEY**: STAINLESS STEEL
- **SET SCREW**: STEEL ZINC PLATED
- **SPRING WASHER**: STEEL ZINC PLATED
- **THIN NUT**: STEEL ZINC PLATED
- **NAMEPLATE**: ALUMINIUM

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>7</td>
<td>0.28</td>
<td>115</td>
<td>4.53</td>
<td>232</td>
<td>9.13</td>
<td>21</td>
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<tr>
<td>15 (1/2&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>7</td>
<td>0.43</td>
<td>115</td>
<td>4.53</td>
<td>232</td>
<td>9.13</td>
<td>21</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>16</td>
<td>0.63</td>
<td>140</td>
<td>5.51</td>
<td>278</td>
<td>10.94</td>
<td>29</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>20</td>
<td>0.79</td>
<td>140</td>
<td>5.51</td>
<td>278</td>
<td>10.94</td>
<td>29</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>245</td>
<td>9.65</td>
<td>444</td>
<td>17.48</td>
<td>50</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>245</td>
<td>9.65</td>
<td>444</td>
<td>17.48</td>
<td>50</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>40</td>
<td>1.57</td>
<td>245</td>
<td>9.65</td>
<td>444</td>
<td>17.48</td>
<td>50</td>
</tr>
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</table>

01 BODY: VARIOUS (SEE BELOW)
02 SEAT: STELLITE
04 LOOSE BACKSEAT: AISI 304
05 STEM PACKING: GRAPHITE
07 GLAND / FLANGE: AISI 304 / CARBON STEEL
11 STEM / DISC: 17 CR / STELLITED (SEE BELOW)
12 YOKE: CARBON STEEL
13 YOKE SLEEVE: ALUMINIUM-BRONZE
14 HANDWHEEL: CARBON STEEL
23 PARALLEL KEY: STAINLESS STEEL
25 SET SCREW: STEEL ZINC PLATED
27 SPRING WASHER: STEEL ZINC PLATED
32 THIN NUT: STEEL ZINC PLATED
44 NAMEPLATE: ALUMINIUM
FORGED STEEL Y-PATTERN GLOBE VALVES, BONNETLESS - FIG 02.2

ASME CLASS  900 / 1500 / 1700 / 2500 / 2700 (4500)
API CLASS  6.000 PSI (10.000 PSI)
EN RATING  PN160 - PN500 (760)

STANDARDS

DESIGN  ASME B16.34 - BS-EN 15761 - EN 12516
BUTTWELDING ENDS  ASME B16.25 - DIN-EN 9692-1 - EN 12627
OTHER END CONNECTIONS  CLAMP CONNECTORS
END-TO-END DIMENSIONS  MANUFACTURER'S STANDARD
PRESSURE TESTING  ASME B16.34 - API 598 - DIN 3230 - EN 12266

MATERIALS

01 BODY  VARIOUS (SEE BELOW)
02 SEAT  STELLITE
03 DISC  F316 / STELLITED
04 LOOSE BACKSEAT  ASTM-A182-F316
05 STEM PACKING  GRAPHITE
07 GLAND FLANGE  42CrMo4
08 GLAND  ASTM-A182-F316
09 GLAND BOLT / NUT  ASTM-A193-B7 / ASTM-A194-2H
10 STEM  17 CR (SEE BELOW)
12 YOKE / FLANGE  ASTM-A216-WCB
15 POSITION INDICATOR  CARBON STEEL
16 BOLT  STEEL ZINC PLATED
23 PARALLEL KEY  STAINLESS STEEL
26 BOLT  STEEL ZINC PLATED
27 SPRING WASHER  STEEL ZINC PLATED
44 NAMEPLATE  ALUMINIUM

FEATURES

DESIGN  CONSTRUCTION  INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
SEAT RING  HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5”)
OPTIONS  PARABOLIC DISC
OPERATION  GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
ACCESSORIES  LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS  BODY  SA105N (1.0460) - SA182-F22 (10CrMo9.10) - SA182-F91 (1.4903) - SA182-F316(L) (OTHERS ON REQUEST)
TRIM  17Cr/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
STEM PACKING  GRAPHITE WITH STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
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<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>G</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 (2-1/2&quot;)</td>
<td>50 (1.97)</td>
<td>50 (1.97)</td>
<td>320 (12.60)</td>
<td>530 (20.87)</td>
<td>72 (2.83)</td>
<td>79.0 (3.11)</td>
<td>95.9</td>
<td>90 (198 LB)</td>
</tr>
<tr>
<td>80 (3&quot;)</td>
<td>60 (2.36)</td>
<td>60 (2.36)</td>
<td>320 (12.60)</td>
<td>530 (20.87)</td>
<td>72 (2.83)</td>
<td>79.0 (3.11)</td>
<td>142.4</td>
<td>87 (192 LB)</td>
</tr>
</tbody>
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Website: www.hpvalves.com
FORGED Y-PATTERN GLOBE VALVES, PRESSURE SEAL BONNET - FIG 02.2

ASME CLASS 900 / 1500 / 1700 / 2500 / 2700 (4500)
API CLASS 6,000 PSI (10,000 PSI)
EN RATING B160 - B500 (760)

STANDARDS

DESIGN ASME B16.34 - B5-EN 15761 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN-EN 9692-1 - EN 12627
OTHER END CONNECTIONS CLAMP CONNECTORS
END-TO-END DIMENSIONS MANUFACTURER’S STANDARD
PRESSURE TESTING ASME B16.34 - API 598 - DIN 3230 - EN 12266

MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
03 DISC F316 / STELLITED
04 BONNET ASTM-A182-F316
05 STEM PACKING GRAPHITE
07 GLAND FLANGE 42CrMo4
08 GLAND ASTM-A182-F316
09 GLAND BOLT / NUT ASTM-A193-B7 / A194-2H
10 STEM 17Cr (SEE BELOW)
12 YOKE / FLANGE ASTM-A216-WCB
15 POSITION INDICATOR CARBON STEEL
16 BOLT STEEL ZINC PLATED
18 RETAINING PLATE ASTM-A105N
19 GASKET ASTM-A182-F316
20 THRUST RING ASTM-A182-F316
21 SEGMENTAL RING ASTM-A182-F316
23 PARALLEL KEY STAINLESS STEEL
26 BOLT STEEL ZINC PLATED
27 SPRING WASHER STEEL ZINC PLATED
29 BOLT STEEL ZINC PLATED
44 NAMEPLATE STAINLESS STEEL

FEATURES

DESIGN CONSTRUCTION PRESSURE SEALED BONNET WITH INTEGRAL BACKSEAT
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5”)
OPTIONS PARABOLIC DISC
OPERATION GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

BODY SA105N - SA182-F22 - SA182-F91 - SA182-F316(L) (OTHERS ON REQUEST)
TRIM 17Cr/STELLITE - F316/STELLITED (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>G</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 (4”)</td>
<td>75 (2.95)</td>
<td>75 (2.95)</td>
<td>320 (12.60)</td>
<td>530 (20.87)</td>
<td>72 (2.83)</td>
<td>79.0 (3.11)</td>
<td>239</td>
<td>83 (183 LB)</td>
</tr>
<tr>
<td>100 (4”)</td>
<td>80 (3.15)</td>
<td>80 (3.15)</td>
<td>320 (12.60)</td>
<td>530 (20.87)</td>
<td>72 (2.83)</td>
<td>79.0 (3.11)</td>
<td>259</td>
<td>78 (172 LB)</td>
</tr>
</tbody>
</table>

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Member of Indutrade AB
## FORGED STEEL THROTTLE VALVES, ANGLE PATTERN - FIG 02.3

<table>
<thead>
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<th>E</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 (1/2&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>11 (0.43)</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>-</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>15 (0.59)</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>-</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>15 (0.59)</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>-</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>28 (1.10)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>-</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>-</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>-</td>
</tr>
</tbody>
</table>

### MAIN DIMENSIONS IN MM (INCH)

#### FEATURES

- **DESIGN**: INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
- **SEAT RING**: HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
- **OPTIONS**: PARABOLIC DISC OR CONTINUOUS BLOW DOWN VALVE (FIG 09.3)
- **OPERATION**: HANDWHEEL - GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
- **ACCESSORIES**: LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

#### MATERIALS

- **BODY**: SA105N (1.0460) - SA182-F12 (13CrMo4.5) - SA182-F22 (10CrMo9.10) - SA182-F91 (1.4903) (OTHERS ON REQUEST)
- **TRIM**: 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
- **STEM PACKING**: GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRESION RINGS

### MATERIALS

- **01 BODY**: VARIOUS (SEE BELOW)
- **02 SEAT**: STELLITE
- **04 LOOSE BACKSEAT**: AISI 304
- **05 STEM PACKING**: GRAPHITE
- **07 GLAND / FLANGE**: AISI 304 / CARBON STEEL
- **09 GLAND BOLT / NUT**: ASTM-A193-B7 / ASTM-A194-2H
- **11 STEM / DISC**: 17 CR / STELLITED (SEE BELOW)
- **12 YOKE**: CARBON STEEL
- **13 YOKE SLEEVE**: ALUMINIUM-BRONZE
- **14 HANDWHEEL**: CARBON STEEL
- **15 POSITION INDICATOR**: 17 CR
- **23 PARALLEL KEY**: STAINLESS STEEL
- **25 SET SCREW**: STEEL ZINC PLATED
- **27 SPRING WASHER**: STEEL ZINC PLATED
- **32 THIN NUT**: STEEL ZINC PLATED
- **44 NAMEPLATE**: ALUMINIUM
FORGED STEEL THROTTLE VALVES, ANGLE PATTERN - FIG 02.3

ASME CLASS 1500 / 2500 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - BS 5352 - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN 2559 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER’S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266

FEATURES

CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS ≥ 5 MM (1/5”)
OPTIONS PARABOLIC DISC OR CONTINUOUS BLOW DOWN VALVE (FIG 09.3)
OPERATION HANDWHEEL - GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

BODY SA182-F316(L) - SA350-LF2 - SA182-F92 - 16Mo3
TRIM 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
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<tbody>
<tr>
<td>15 (1/2&quot;)</td>
<td>18</td>
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<td>11</td>
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<td>75</td>
<td>2.95</td>
<td>239</td>
<td>(9.41)</td>
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<td>0.71</td>
<td>15</td>
<td>0.59</td>
<td>75</td>
<td>2.95</td>
<td>239</td>
<td>(9.41)</td>
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<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>18</td>
<td>0.71</td>
<td>75</td>
<td>2.95</td>
<td>239</td>
<td>(9.41)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>28</td>
<td>1.10</td>
<td>175</td>
<td>6.89</td>
<td>379</td>
<td>(14.92)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>36</td>
<td>1.42</td>
<td>175</td>
<td>6.89</td>
<td>379</td>
<td>(14.92)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>36</td>
<td>1.42</td>
<td>175</td>
<td>6.89</td>
<td>379</td>
<td>(14.92)</td>
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</table>
FORGED STEEL THROTTLE VALVES, BONNETLESS - FIG 02.6

ASME CLASS 1500 / 2500 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - BS 5352 - (API 600) - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN 2559 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266

MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
04 LOOSE BACKSEAT AI5 304
05 STEM PACKING GRAPHITE
07 GLAND / FLANGE AI5 304 / CARBON STEEL
09 GLAND BOLT / NUT ASTM-A193-B7 / ASTM-A194-2H
11 STEM / DISC 17 CR / STELLITED (SEE BELOW)
12 YOKE CARBON STEEL
13 YOKE SLEEVE ALUMINIUM-BRONZE
14 HANDWHEEL CARBON STEEL
15 POSITION INDICATOR 17 CR
23 PARALLEL KEY STAINLESS STEEL
25 SET SCREW STEEL ZINC PLATED
27 SPRINGWASHER STEEL ZINC PLATED
32 THIN NUT STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM

FEATURES

DESIGN CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
OPERATION HANDWHEEL - GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

BODY SA105N - SA350-LF2 - SA182-F12 - SA182-F22 - SA182-F316(L) - SA182-F51 (OTHERS ON REQUEST)
TRIM 17CR/STELLETTE - F316/STELLETTE - F51/STELLETTE (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A (inch)</th>
<th>B (inch)</th>
<th>C (inch)</th>
<th>D (inch)</th>
<th>E (inch)</th>
<th>F (inch)</th>
<th>Cv</th>
<th>WEIGHT KG</th>
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</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>11 (0.43)</td>
<td>7 (0.28)</td>
<td>132 (5.20)</td>
<td>215 (8.46)</td>
<td>25 (0.98)</td>
<td>150 (5.91)</td>
<td>1.3</td>
<td>3.6 (7.9 LB)</td>
</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11 (0.43)</td>
<td>11 (0.43)</td>
<td>132 (5.20)</td>
<td>215 (8.46)</td>
<td>25 (0.98)</td>
<td>150 (5.91)</td>
<td>2.1</td>
<td>3.5 (7.7 LB)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18 (0.71)</td>
<td>16 (0.63)</td>
<td>137 (5.39)</td>
<td>263 (10.35)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
<td>5.8</td>
<td>6.9 (15.2 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18 (0.71)</td>
<td>20 (0.79)</td>
<td>154 (6.06)</td>
<td>263 (10.35)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
<td>7.0</td>
<td>6.7 (14.8 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>192 (7.56)</td>
<td>426 (16.77)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>21.9</td>
<td>29.0 (63.9 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>192 (7.56)</td>
<td>426 (16.77)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>21.9</td>
<td>29.0 (63.9 LB)</td>
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<tr>
<td>50 (2&quot;)</td>
<td>36 (1.42)</td>
<td>40 (1.57)</td>
<td>192 (7.56)</td>
<td>426 (16.77)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>26.5</td>
<td>27.7 (61.1 LB)</td>
</tr>
</tbody>
</table>

HP Valves Oldenzaal BV, P.O. Box 151, 7570 AD Oldenzaal, The Netherlands
Phone: +31 (0)541 510555, Fax: +31 (0)541 522045, E-mail: info@hpvalves.com
Website: www.hpvalves.com

Member of Plasticon Holding BV
FORGED STEEL THROTTLE VALVES, BONNETLESS - FIG 02.6

STANDARDS

- DESIGN: ASME B16.34 - BS-EN 15761 - DIN 3840 - EN 12516
- BUTT WELDING ENDS: ASME B16.25 - DIN-EN 9692-1 - EN 12627
- SOCKET WELDING ENDS: ASME B16.11 - EN 12760 (< 2800 LBS)
- OTHER END CONNECTIONS: API OR NPT FEMALE THREADS (< 2800 LBS) / CLAMP CONNECTORS
- END-TO-END DIMENSIONS: MANUFACTURER’S STANDARD
- PRESSURE TESTING: ASME B16.34 - API 598 - DIN 3230 - EN 12266

FEATURES

- DESIGN: INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
- SEAT RING: HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5”)
- OPTIONS: PARABOLIC DISC
- OPERATION: HANDWHEEL - GEARBOX - ELECTRIC OR PNEUMATIC ACTUATOR
- ACCESSORIES: LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

- BODY: VARIOUS (SEE BELOW)
- SEAT: STELLITE
- LOOSE BACKSEAT: AISI 304
- STEM PACKING: GRAPHITE / SS
- RING: AISI 304
- GLAND / FLANGE: AISI 304 / CARBON STEEL
- STEM / DISC: 17 CR / STELLITED (SEE BELOW)
- YOKE: CARBON STEEL
- YOKE SLEEVE: ALUMINIUM-BRONZE
- HANDWHEEL: CARBON STEEL
- POSITION INDICATOR: 17 CR
- PARALLEL KEY: STAINLESS STEEL
- SET SCREW: STEEL ZINC PLATED
- SPRING WASHER: STEEL ZINC PLATED
- THIN NUT: STEEL ZINC PLATED
- NAMEPLATE: STAINLESS STEEL

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
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<tr>
<td>10 (3/8&quot;)</td>
<td>8 (0.31)</td>
<td>6 (0.24)</td>
<td>132 (5.2)</td>
<td>215 (8.46)</td>
<td>25 (0.98)</td>
<td>150 (5.91)</td>
<td>-</td>
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<td>8 (0.31)</td>
<td>8 (0.31)</td>
<td>132 (5.2)</td>
<td>215 (8.46)</td>
<td>25 (0.98)</td>
<td>150 (5.91)</td>
<td>1.15</td>
<td>3.7 (8.2 LB)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>14 (0.55)</td>
<td>10 (0.39)</td>
<td>154 (6.06)</td>
<td>263 (10.35)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
<td>1.15</td>
<td>7.2 (15.9 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>14 (0.55)</td>
<td>14 (0.55)</td>
<td>154 (6.06)</td>
<td>263 (10.35)</td>
<td>38 (1.50)</td>
<td>200 (7.87)</td>
<td>3.5</td>
<td>7.0 (15.4 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>28 (1.10)</td>
<td>22 (0.87)</td>
<td>192 (7.56)</td>
<td>426 (16.77)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>-</td>
<td>30.3 (66.8 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>28 (1.10)</td>
<td>25 (0.98)</td>
<td>192 (7.56)</td>
<td>426 (16.77)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>-</td>
<td>30.1 (66.4 LB)</td>
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<tr>
<td>50 (2&quot;)</td>
<td>28 (1.10)</td>
<td>28 (1.10)</td>
<td>192 (7.56)</td>
<td>426 (16.77)</td>
<td>72 (2.83)</td>
<td>350 (13.78)</td>
<td>14.5</td>
<td>29.9 (65.9 LB)</td>
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</tbody>
</table>
FORGED STEEL STOP-CHECK (SDNR), BONNETLESS - FIG 03.1

ASME CLASS 1500 / 2500 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - BS 5352 - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN 2559 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266

MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
03 DISC STELLITE
04 LOOSE BACKSEAT AISI 304
05 STEM PACKING GRAPHITE
07 GLAND FLANGE CARBON STEEL
08 GLAND AISI 304
09 GLAND BOLT / NUT ASTM-A193-87 / ASTM-A194-2H
10 STEM 17 CR (SEE BELOW)
12 YOKE CARBON STEEL
13 YOKE SLEEVE ALUMINIUM-BRONZE
14 HANDWHEEL CARBON STEEL
21 NUT STEEL ZINC PLATED
27 SPRINGWASHER STEEL ZINC PLATED
28 SPRINGWASHER STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM
50 PIN HARDENED STEEL

FEATURES

DESIGN CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5″)
OPTIONS ALSO AVAILABLE IN ANGLE PATTERN WITH 75 MM (2 1/2″) CENTRE-TO-END
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

BODY SA105N (1.0460) - SA182-F12 (13CrMo 4.4) - SA182-F22 (10CrMo 9.10) - SA182-F91 (1.4903) (OTHERS ON REQUEST)
TRIM 17Cr (1.4122) / STELLITE - F316 (1.4401) / STELLITE - 431 (1.4057) (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
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<td>7.00</td>
<td>210</td>
<td>220</td>
<td>25.00</td>
<td>150</td>
<td>1.3</td>
<td>3.0</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>16</td>
<td>9.00</td>
<td>230</td>
<td>278</td>
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<td>25 (1&quot;)</td>
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<td>230</td>
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<td>38.00</td>
<td>200</td>
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<td>350</td>
<td>31.0</td>
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</tr>
</tbody>
</table>

HP Valves Oldenzaal BV, P.O. Box 151, 7570 AD Oldenzaal, The Netherlands
Phone: +31 (0)541 519355, Fax: +31 (0)541 522045, E-mail: info@hpvalves.com
Website: www.hpvalves.com

Member of Indutrade AB

B03-P16 05-01
FORGED STEEL Y-PATTERN STOP-CHECK (SDNR) VALVES - FIG 03.2

ASME CLASS 900 / 1500 / 1700 / 2500 / 2700 (4500)
API CLASS 6.000 PSI (10.000 PSI)

STANDARDS

DESIGN ASME B16.34 - B5 5352 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN 2559 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - B5 6755 - DIN 3230 - EN 12266

MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
03 DISC STELLITE
04 LOOSE BACKSEAT AISI 304
05 STEM PACKING GRAPHITE
07 GLAND FLANGE CARBON STEEL
08 GLAND AISI 304
09 GLAND BOLT / NUT ASTM-A193-87 / ASTM-A194-2H
10 STEM 17 CR (SEE BELOW)
12 YOKE CARBON STEEL
13 YOKE SLEEVE ALUMINIUM-BRONZE
14 HANDWHEEL CARBON STEEL
21 NUT STEEL ZINC PLATED
27 SPRINGWASHER STEEL ZINC PLATED
28 SPRINGWASHER STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM
50 PIN HARDENED STEEL

FEATURES

DESIGN CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

BODY SA105N - SA182-F22 - SA182-F91 - SA182-F316L (OTHERS ON REQUEST)
TRIM 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
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<tr>
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<td>7</td>
<td>0.28</td>
<td>115</td>
<td>4.53</td>
<td>236</td>
<td>9.29</td>
<td>21 (0.83)</td>
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<td>15 (1/2&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>11</td>
<td>0.43</td>
<td>115</td>
<td>4.53</td>
<td>236</td>
<td>9.29</td>
<td>21 (0.83)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
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<td>0.71</td>
<td>11</td>
<td>0.63</td>
<td>140</td>
<td>5.51</td>
<td>291</td>
<td>11.46</td>
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</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>20</td>
<td>0.79</td>
<td>140</td>
<td>5.51</td>
<td>291</td>
<td>11.46</td>
<td>29 (1.14)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>245</td>
<td>9.65</td>
<td>469</td>
<td>18.46</td>
<td>50 (1.97)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>245</td>
<td>9.65</td>
<td>469</td>
<td>18.46</td>
<td>50 (1.97)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>40</td>
<td>1.57</td>
<td>245</td>
<td>9.65</td>
<td>469</td>
<td>18.46</td>
<td>50 (1.97)</td>
</tr>
</tbody>
</table>
FORGED STEEL STOP-CHECK (SDNR) VALVES, ANGLE PATTERN - FIG 03.3

**STANDARDS**
- DESIGN: ASME B16.34 - BS 5352 - DIN 3840 - EN 12516
- BUTTWELDING ENDS: ASME B16.25 - DIN 2559 - EN 12627
- SOCKET WELDING ENDS: ASME B16.11 - EN 12760
- OTHER END CONNECTIONS: API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
- END-TO-END DIMENSIONS: MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
- PRESSURE TESTING: ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266

**FEATURES**
- DESIGN: INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT
- SEAT RING: HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5”)
- ACCESSORIES: LIMIT SWITCHES - LOCKING DEVICE - POSITION INDICATOR - LIVE LOADED GLAND (OTHERS ON REQUEST)

**MATERIALS**
- BODY: SA105N (1.0460) - SA182-F12 (13CrMo4.5) - SA182-F22 (10CrMo9.10) - SA182-F91 (1.4903) (OTHERS ON REQUEST)
- TRIM: 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
- STEM PACKING: GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

**MAIN DIMENSIONS IN MM (INCH)**

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 (1/2&quot;)</td>
<td>18</td>
<td>11</td>
<td>105</td>
<td>260</td>
<td>200</td>
<td>-</td>
<td>8.0</td>
<td>(17.4 LB)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18</td>
<td>15</td>
<td>105</td>
<td>260</td>
<td>200</td>
<td>-</td>
<td>7.9</td>
<td>(17.2 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>18</td>
<td>105</td>
<td>260</td>
<td>200</td>
<td>-</td>
<td>7.8</td>
<td>(17.0 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>28</td>
<td>175</td>
<td>430</td>
<td>350</td>
<td>-</td>
<td>34.1</td>
<td>(75.2 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>36</td>
<td>175</td>
<td>430</td>
<td>350</td>
<td>-</td>
<td>32.9</td>
<td>(72.5 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>36</td>
<td>175</td>
<td>430</td>
<td>350</td>
<td>-</td>
<td>32.9</td>
<td>(72.5 LB)</td>
</tr>
</tbody>
</table>
FORGED STEEL STOP-CHECK (SDNR) VALVES, BONNETLESS - FIG 03.6

ASME CLASS 1500 / 2500 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - BS 5352 - (API 600) - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN 2559 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266

MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
03 DISC STELLITE
04 LOOSE BACKSEAT AISI 304
05 STEM PACKING GRAPHITE
07 GLAND FLANGE CARBON STEEL
08 GLAND AISI 304
09 GLAND BOLT / NUT ASTM-A193-87 / ASTM-A194-2H
10 STEM 17 CR (SEE BELOW)
12 YOKE CARBON STEEL
13 YOKE SLEEVE ALUMINIUM-BRONZE
14 HANDWHEEL CARBON STEEL
21 NUT STEEL ZINC PLATED
27 SPRINGWASHER STEEL ZINC PLATED
28 SPRINGWASHER STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM
50 PIN HARDENED STEEL

FEATURES

DESIGN CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - POSITION INDICATOR - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS BODY SA105N - SA350-LF2 - SA182-F12 - SA182-F22 - SA182-F316(L) - SA182-F51 (OTHERS ON REQUEST)
TRIM 17CR/STELLITE - F316/STELLITE - F51/STELLITE (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT LG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>7</td>
<td>0.28</td>
<td>132</td>
<td>5.20</td>
<td>220</td>
<td>8.66</td>
</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>11</td>
<td>0.43</td>
<td>132</td>
<td>5.20</td>
<td>220</td>
<td>8.66</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>16</td>
<td>0.63</td>
<td>137</td>
<td>5.39</td>
<td>278</td>
<td>10.94</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>20</td>
<td>0.79</td>
<td>154</td>
<td>6.06</td>
<td>278</td>
<td>10.94</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>192</td>
<td>7.56</td>
<td>450</td>
<td>17.72</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>30</td>
<td>1.18</td>
<td>192</td>
<td>7.56</td>
<td>450</td>
<td>17.72</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>40</td>
<td>1.57</td>
<td>192</td>
<td>7.56</td>
<td>450</td>
<td>17.72</td>
</tr>
</tbody>
</table>
FORGED STEEL STRAIGHT / Y-PATTERN CHECK VALVES - FIG 04.1 / 04.2

ASME CLASS 900 - 2700 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - B5-EN 15761 - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN-EN 962-1 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RT OR RF
END-TO-END DIMENSIONS MANUFACTURER’S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - API 598 - DIN 3230 - EN 12266

FEATURES

MATERIALS

Y-PATTERN SA105N - SA182-F22 - SA182-F91 - SA182-F316(L) (OTHERS ON REQUEST)
STRAIGHT BODY SA105N (1.0460) - SA182-F12 (13CrMo4.5) - SA182-F22 (10CrMo9.10) - SA182-F91 (1.4903) (OTHERS ON REQUEST)
TRIM SPRING ASSISTED STELLITE PISTON (FIG 04) OR STAINLESS STEEL BALL (FIG 05)

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C1</th>
<th>D1</th>
<th>Cv</th>
<th>WEIGHT KG</th>
<th>C2</th>
<th>D2</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>0.43</td>
<td>115</td>
<td>4.53</td>
<td>98</td>
<td>3.66</td>
<td>1.5</td>
<td>2.0</td>
<td>4.4 LB</td>
</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11</td>
<td>0.43</td>
<td>11</td>
<td>115</td>
<td>4.53</td>
<td>98</td>
<td>3.66</td>
<td>2.7</td>
<td>1.9</td>
<td>4.2 LB</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>1.18</td>
<td>140</td>
<td>5.51</td>
<td>123</td>
<td>4.84</td>
<td>8.0</td>
<td>3.0</td>
<td>6.6 LB</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18</td>
<td>0.71</td>
<td>0.79</td>
<td>140</td>
<td>5.51</td>
<td>123</td>
<td>4.84</td>
<td>8.7</td>
<td>2.8</td>
<td>6.2 LB</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>1.18</td>
<td>245</td>
<td>9.65</td>
<td>198</td>
<td>7.80</td>
<td>34.4</td>
<td>18.9</td>
<td>41.7 LB</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>1.18</td>
<td>245</td>
<td>9.65</td>
<td>198</td>
<td>7.80</td>
<td>34.4</td>
<td>18.9</td>
<td>41.7 LB</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36</td>
<td>1.42</td>
<td>1.57</td>
<td>245</td>
<td>9.65</td>
<td>198</td>
<td>7.80</td>
<td>44.2</td>
<td>17.5</td>
<td>38.6 LB</td>
</tr>
<tr>
<td>65 (2-1/2&quot;)</td>
<td>50</td>
<td>1.97</td>
<td>1.97</td>
<td>320</td>
<td>12.60</td>
<td>292</td>
<td>11.50</td>
<td>95.9</td>
<td>72.0</td>
<td>158.7 LB</td>
</tr>
<tr>
<td>80 (3&quot;)</td>
<td>60</td>
<td>2.36</td>
<td>2.36</td>
<td>320</td>
<td>12.60</td>
<td>292</td>
<td>11.50</td>
<td>142.4</td>
<td>69.0</td>
<td>152.1 LB</td>
</tr>
<tr>
<td>100 (4&quot;)</td>
<td>75</td>
<td>2.95</td>
<td>2.95</td>
<td>320</td>
<td>12.60</td>
<td>292</td>
<td>11.50</td>
<td>239.2</td>
<td>65.0</td>
<td>143.3 LB</td>
</tr>
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</table>

DESIGN CONSTRUCTION PRESSURE SEAL BONNET
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5")

MAJOR MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
03 DISC STELLITE
17 SPRING AISI 302
18 BONNET ASTM-A182-F316
19 GASKET ASTM-A182-F316
20 CAP AISI 304 (>2" CS)
27 SPRING WASHER STEEL ZINC PLATED
32 NUT STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM
FORGED STEEL CHECK VALVES - FIG 04.6

ASME CLASS 1500 / 2500 (4500)
API CLASS 6,000 PSI (10,000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - BS 5352 - (API 600) - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN 2559 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266

WEIGHT KG

NOM. SIZE A B C D E △P TO OPEN Cv WEIGHT KG
10 (3/8") 11 (0.43) 7 (0.28) 132 (5.20) 108 (4.25) 25 (0.98) 0.5 BAR 1.3 2.1 (4.6 LB)
15 (1/2") 11 (0.43) 11 (0.43) 132 (5.20) 108 (4.25) 25 (0.98) 0.5 BAR 2.2 2.0 (4.4 LB)
20 (3/4") 18 (0.71) 16 (0.63) 137 (5.39) 135 (5.31) 38 (1.50) 0.5 BAR 5.9 3.7 (8.2 LB)
25 (1") 18 (0.71) 20 (0.79) 154 (6.06) 135 (5.31) 38 (1.50) 0.5 BAR 6.7 3.5 (7.7 LB)
32 (1-1/4") 36 (1.42) 30 (1.18) 192 (7.56) 213 (8.39) 72 (2.83) 0.5 BAR 22.3 18.0 (39.7 LB)
40 (1-1/2") 36 (1.42) 30 (1.18) 192 (7.56) 213 (8.39) 72 (2.83) 0.5 BAR 22.3 18.0 (39.7 LB)
50 (2") 36 (1.42) 40 (1.57) 192 (7.56) 213 (8.39) 72 (2.83) 0.5 BAR 26.1 16.7 (36.8 LB)

CONTACT

HP Valves Oldenzaal BV, P.O. Box 151, 7570 AD Oldenzaal, The Netherlands
Phone: +31 (0)541 519555, Fax: +31 (0)541 522045, E-mail: info@hpvalves.com
Website: www.hpvalves.com

Member of Indutrade AB
FORGED STEEL Y-PATTERN BALL CHECK VALVES - FIG 05.2

STANDARDS

| DESIGN | ASME B16.34 - BS-EN 15761 - DIN 3840 - EN 12516 |
| BUTTWELDING ENDS | ASME B16.25 - DIN-EN 9692-1 - EN 12627 |
| SOCKET WELDING ENDS | ASME B16.11 - EN 12760 |
| OTHER END CONNECTIONS | API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF |
| END-TO-END DIMENSIONS | MANUFACTURER'S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD) |
| PRESSURE TESTING | ASME B16.34 - API 598 - DIN 3230 - EN 12266 |

MATERIALS

<table>
<thead>
<tr>
<th>NO</th>
<th>PART</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>BODY</td>
<td>VARIOUS (SEE BELOW)</td>
</tr>
<tr>
<td>02</td>
<td>SEAT</td>
<td>STELLITE</td>
</tr>
<tr>
<td>03</td>
<td>BALL</td>
<td>F316</td>
</tr>
<tr>
<td>17</td>
<td>SPRING</td>
<td>AISI 302</td>
</tr>
<tr>
<td>18</td>
<td>BONNET</td>
<td>ASTM-A182-F316</td>
</tr>
<tr>
<td>19</td>
<td>GASKET</td>
<td>ASTM-A182-F316</td>
</tr>
<tr>
<td>20</td>
<td>CAP</td>
<td>CARBON STEEL</td>
</tr>
<tr>
<td>27</td>
<td>SPRINGWASHER</td>
<td>STEEL ZINC PLATED</td>
</tr>
<tr>
<td>32</td>
<td>NUT</td>
<td>STEEL ZINC PLATED</td>
</tr>
<tr>
<td>44</td>
<td>NAMEPLATE</td>
<td>STAINLESS STEEL</td>
</tr>
</tbody>
</table>

FEATURES

| DESIGN | CONSTRUCTION PRESSURE SEAL BONNET |
| SEAT RING | HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5") |
| MATERIALS | BODY SA105N - SA182-F22 - SA182-F91 - SA182-F316(L) (OTHERS ON REQUEST) |
| TRIM | SPRING ASSISTED STAINLESS STEEL BALL (FIG 05) OR STELLITE PISTON (FIG 04) |

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>11 (0.43)</td>
<td>7 (0.28)</td>
<td>115 (4.53)</td>
<td>98 (3.86)</td>
<td>1.5</td>
<td>2.0 (4.4 LB)</td>
</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11 (0.43)</td>
<td>11 (0.43)</td>
<td>115 (4.53)</td>
<td>98 (3.86)</td>
<td>2.7</td>
<td>1.9 (4.2 LB)</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>18 (0.71)</td>
<td>16 (0.63)</td>
<td>140 (5.51)</td>
<td>123 (4.84)</td>
<td>8.0</td>
<td>3.0 (6.6 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>18 (0.71)</td>
<td>20 (0.79)</td>
<td>140 (5.51)</td>
<td>123 (4.84)</td>
<td>8.7</td>
<td>2.8 (6.2 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>245 (9.65)</td>
<td>198 (7.80)</td>
<td>34.4</td>
<td>18.9 (41.7 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>245 (9.65)</td>
<td>198 (7.80)</td>
<td>34.4</td>
<td>18.9 (41.7 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>36 (1.42)</td>
<td>40 (1.57)</td>
<td>245 (9.65)</td>
<td>198 (7.80)</td>
<td>44.2</td>
<td>17.5 (38.6 LB)</td>
</tr>
</tbody>
</table>

HP Valves Oldenzaal BV, P.O. Box 151, 7570 AD Oldenzaal, The Netherlands
Phone: +31 (0)541 519555, Fax: +31 (0)541 522045, E-mail: info@hpvalves.com
Website: www.hpvalves.com

Member of Indutrade AB
FORGED STEEL GATE VALVES, BONNETLESS - FIG 06.6

ASME CLASS 1500 / 2500 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

DESIGN ASME B16.34 - BS-EN 15761 - DIN 3840 - EN 12516
BUTTWELDING ENDS ASME B16.25 - DIN-EN 9692-1 - EN 12627
SOCKET WELDING ENDS ASME B16.11 - EN 12760
OTHER END CONNECTIONS API OR NPT FEMALE THREADS / CLAMP CONNECTORS / FLANGED RTJ OR RF
END-TO-END DIMENSIONS MANUFACTURER’S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
PRESSURE TESTING ASME B16.34 - API 598 - DIN 3230 - EN 12266

FEATURES

CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT
SEAT HIGH TEMPERATURE VACUUM BRAZED IN STELLITE SEAT OR WELDED IN STELLITITED SEAT RINGS
OPERATION OPTIONAL NON-ROTATING STEM FOR ELECTRIC OR PNEUMATIC ACTUATOR
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - POSITION INDICATOR - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

BODY SA105N - SA350-LF2 - SA182-F12 - SA182-F22 - SA182-F316(L) - SA182-F51 - SA182-F91
TRIM 17CR/STELLITE - F316/STELLITE - F51/STELLITE (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
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<th>NOM. SIZE</th>
<th>A (0.28)</th>
<th>B</th>
<th>C (5.20)</th>
<th>D (8.86)</th>
<th>E (0.98)</th>
<th>F</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8&quot;)</td>
<td>7</td>
<td>132</td>
<td>225</td>
<td>25</td>
<td>150</td>
<td>2.2</td>
<td>3.5</td>
<td>7.7 LB</td>
</tr>
<tr>
<td>15 (1/2&quot;)</td>
<td>11</td>
<td>132</td>
<td>225</td>
<td>25</td>
<td>150</td>
<td>6.0</td>
<td>3.4</td>
<td>7.5 LB</td>
</tr>
<tr>
<td>20 (3/4&quot;)</td>
<td>15</td>
<td>137</td>
<td>282</td>
<td>38</td>
<td>200</td>
<td>11.2</td>
<td>6.7</td>
<td>14.8 LB</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>19</td>
<td>154</td>
<td>282</td>
<td>38</td>
<td>200</td>
<td>21.5</td>
<td>6.5</td>
<td>14.3 LB</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>30</td>
<td>192</td>
<td>455</td>
<td>72</td>
<td>350</td>
<td>42.9</td>
<td>3.0</td>
<td>66.1 LB</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>30</td>
<td>192</td>
<td>455</td>
<td>72</td>
<td>350</td>
<td>42.9</td>
<td>3.0</td>
<td>66.1 LB</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>38</td>
<td>192</td>
<td>455</td>
<td>72</td>
<td>350</td>
<td>77.8</td>
<td>2.8</td>
<td>61.7 LB</td>
</tr>
</tbody>
</table>

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Website: www.hpvalves.com

Member of Indutrade AB 803-P10 06-01
FORGED STEEL GATE VALVES, PRESSURE SEAL BONNET – FIG 06.6

ASME CLASS 1500 / 2500 (4500)  
EN RATING PN160 - PN500 (B760)

STANDARDS

- DESIGN ASME B16.34 - EN 12516 - BS 10434 - API 600
- BUTTWELDING ENDS ASME B16.25 - EN 12627 - DIN-EN 9692-1
- END-TO-END DIMENSIONS ASME B16.10 - EN 12982 / EN 558-2 - MANUFACTURERS STANDARD
- PRESSURE TESTING ASME B16.34 - EN 12266 - API 598

MATERIALS

01 BODY (SA105N (SEE BELOW))
02 SEAT RING A106 + STELLITE #12
03 PARALLEL DISC STELLITE #6
04 BONNET ASTM - A105
05 STEM PACKING GRAPHITE/316 (GNHD)
06 SPRING INCONEL 750
07 GLAND FlANGE 42CrMo4
08 GLAND ASSI 304
09 GLAND BOLT / NUT ASTM-A193-B7 / A194-2H
10 STEM 17Cr / 1.4122
11 TOPFLANGE CARBON STEEL
12 YOKE BAR 17Cr / 1.4122
13 YOKE SLEEVE ALU-BRONZE
14 HANDWHEEL CARBON STEEL
15 GUIDING-PLATE CARBON STEEL
16 DISC HOLDER ASTM-A182-F316
18 RETAINING PLATE C22.8
19 GASKET GRAPHITE / 316
20 THRUST RING ASTM-A182-F316
21 SEGMENTAL RING 1.4923
24 PARALLEL KEY STAINLESS STEEL
26 NEEDLE BEARING -
27 SPRING WASHER STEEL ZINC PLATED
28 BOLT STEEL ZINC PLATED
29 BOLT STEEL ZINC PLATED
32 THIN NUT STEEL ZINC PLATED
44 NAME PLATE STAINLESS STEEL

FEATURES

- DESIGN CONSTRUCTION PRESSURE SEAL BONNET AND INTEGRAL BACKSEAT
- OPTIONS AUXILIARY CONNECTIONS AND/OR PROTECTION AGAINST FLUID THERMAL EXPANSION
- OPERATION HANDWHEEL - ELECTRIC OR PNEUMATIC ACTUATOR
- ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - POSITION INDICATOR - STEM COVER (OTHERS ON REQUEST)

MATERIALS BODY / BONNET (SA105N (1.0460) - (SA182-F22 (10C/Mo9.10) - (SA182-F91 (1.4903) - (SA182-F92 - (SA182-F316L) (OTHERS ON REQUEST)
- STEM PACKING GRAPHITE WITH STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>CLASS</th>
<th>A</th>
<th>B (IN)</th>
<th>C</th>
<th>D (IN)</th>
<th>E</th>
<th>F (IN)</th>
<th>Cv</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1/2&quot;(65)</td>
<td>1500LBS</td>
<td>52</td>
<td>2.05</td>
<td>55</td>
<td>2.17</td>
<td>305</td>
<td>12</td>
<td>93</td>
<td>3.7</td>
</tr>
<tr>
<td>3&quot; (80)</td>
<td>1500LBS</td>
<td>62</td>
<td>2.44</td>
<td>65</td>
<td>2.56</td>
<td>305</td>
<td>12</td>
<td>93</td>
<td>3.7</td>
</tr>
<tr>
<td>4&quot; (100)</td>
<td>1500LBS</td>
<td>80</td>
<td>3.15</td>
<td>85</td>
<td>3.35</td>
<td>406</td>
<td>16</td>
<td>645</td>
<td>25.4</td>
</tr>
<tr>
<td>2-1/2&quot;(65)</td>
<td>2500LBS</td>
<td>52</td>
<td>2.05</td>
<td>55</td>
<td>2.17</td>
<td>305</td>
<td>12</td>
<td>93</td>
<td>3.7</td>
</tr>
<tr>
<td>3&quot; (80)</td>
<td>2500LBS</td>
<td>52</td>
<td>2.05</td>
<td>55</td>
<td>2.17</td>
<td>305</td>
<td>12</td>
<td>93</td>
<td>3.7</td>
</tr>
<tr>
<td>4&quot; (100)</td>
<td>2500LBS</td>
<td>70</td>
<td>2.76</td>
<td>75</td>
<td>2.95</td>
<td>406</td>
<td>16</td>
<td>640</td>
<td>25.2</td>
</tr>
</tbody>
</table>

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Website: www.hpvalves.com

Member of Indutrade AB
FORGED STEEL Y-PATTERN STRainers - fig 08.2

ASME CLASS 900 - 2700 (4500)
API CLASS 6.000 PSI (10.000 PSI)
DIN CLASS PN 160 - PN 640

Standards

Design ASME B16.34 - BS-EN 15761 - DIN 3840 - EN 12516
ButtWelding Ends ASME B16.25 - BS-EN 9692-1 - EN 12627
Socket Welding Ends ASME B16.11 - EN 12760
Other End Connections API OR NPT Female ThEnds / CLAMP CONNECTORS / FLANGED RTJ OR RF
End-to-end Dimensions Manufacturer’s Standard (Flanged Valves Acc. The Relevant Standard)
Pressure Testing ASME §16.34 - API 598 - DIN 3230 - EN 12266

Materials

01 Body Various (See Below)
18 Bonnet ASTM-A182-F316
19 Gasket ASTM-A182-F316
20 Cap AISI 304 (>2” CS)
27 Springwasher Steel Zinc Plated
32 Nut Steel Zinc Plated
44 Nameplate Aluminiun
56 Screen ASTM-A182-F316L

Features

Design Construction Pressure Seal Bonnet
Screen Slotted Tube (0.1, 0.2, 0.3 Or 0.5 Mm Perforation), Designed for Maximum Differential Pressure
Options Bonnet With 3/8” ButtWelding Drain Connection

Materials

Body SA105N - SA182-F22 - SA182-F91 - SA182-F316(L) (Others On Request)

Main Dimensions in MM (Inch)

<table>
<thead>
<tr>
<th>Nom. Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Weight Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (3/8”)</td>
<td>18 (0.71)</td>
<td>7 (0.28)</td>
<td>140 (5.51)</td>
<td>123 (4.84)</td>
<td>29 (1.14)</td>
<td>3.3 (7.3 LB)</td>
</tr>
<tr>
<td>15 (1/2”)</td>
<td>18 (0.71)</td>
<td>11 (0.43)</td>
<td>140 (5.51)</td>
<td>123 (4.84)</td>
<td>29 (1.14)</td>
<td>3.2 (7.1 LB)</td>
</tr>
<tr>
<td>20 (3/4”)</td>
<td>18 (0.71)</td>
<td>16 (0.63)</td>
<td>140 (5.51)</td>
<td>123 (4.84)</td>
<td>29 (1.14)</td>
<td>3.0 (6.6 LB)</td>
</tr>
<tr>
<td>25 (1”)</td>
<td>18 (0.71)</td>
<td>20 (0.79)</td>
<td>140 (5.51)</td>
<td>123 (4.84)</td>
<td>29 (1.14)</td>
<td>2.8 (6.2 LB)</td>
</tr>
<tr>
<td>32 (1-1/4”)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>245 (9.65)</td>
<td>198 (7.80)</td>
<td>50 (1.97)</td>
<td>18.9 (41.8 LB)</td>
</tr>
<tr>
<td>40 (1-1/2”)</td>
<td>36 (1.42)</td>
<td>30 (1.18)</td>
<td>245 (9.65)</td>
<td>198 (7.80)</td>
<td>50 (1.97)</td>
<td>18.9 (41.8 LB)</td>
</tr>
<tr>
<td>50 (2”)</td>
<td>36 (1.42)</td>
<td>40 (1.57)</td>
<td>245 (9.65)</td>
<td>198 (7.80)</td>
<td>50 (1.97)</td>
<td>17.5 (38.8 LB)</td>
</tr>
<tr>
<td>65 (2-1/2”)</td>
<td>50 (1.97)</td>
<td>50 (1.97)</td>
<td>320 (12.60)</td>
<td>292 (11.50)</td>
<td>72 (2.83)</td>
<td>70.0 (154.3 LB)</td>
</tr>
<tr>
<td>80 (3”)</td>
<td>60 (2.36)</td>
<td>60 (2.36)</td>
<td>320 (12.60)</td>
<td>292 (11.50)</td>
<td>72 (2.83)</td>
<td>67.0 (147.7 LB)</td>
</tr>
<tr>
<td>100 (4”)</td>
<td>75 (2.95)</td>
<td>75 (2.95)</td>
<td>320 (12.60)</td>
<td>292 (11.50)</td>
<td>72 (2.83)</td>
<td>63.0 (138.9 LB)</td>
</tr>
</tbody>
</table>

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Website: www.hpvalves.com

Member of Indutrade AB
FORGED STEEL CONT. BLOW DOWN VALVES, BONNETLESS - FIG 09.3

ASME CLASS 900 - 2500 (4500)
API CLASS 6,000 PSI (10,000 PSI)
DIN CLASS PN 160 - PN 640

STANDARDS

- DESIGN: ASME B16.34 - BS EN 15761 - DIN 3840 - EN 12516
- BUTTWELDING ENDS: ASME B16.25 - DIN EN 9692-1 - EN 12627
- SOCKET WELDING ENDS: ASME B16.11 - EN 12760
- OTHER END CONNECTIONS: CLAMP CONNECTORS / FLANGED RT OR RF
- END-TO-END DIMENSIONS: MANUFACTURER’S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)
- PRESSURE TESTING: ASME B16.34 - API 598 - DIN 3230 - EN 12266

MATERIALS

- BODY: VARIOUS (SEE BELOW)
- SEAT: STELLITE
- VENTURI: ASTM-A182-F316
- LOOSE BACKSEAT: AISI 304
- STEM PACKING: GRAPHITE
- GLAND / FLANGE: AISI 304 / CARBON STEEL
- STEM / DISC: 17 CR / STELLITED (SEE BELOW)
- YOKE SLEEVE: ALUMINIUM-BRONZE
- HANDWHEEL: CARBON STEEL
- POSITION INDICATOR: 17 CR
- PARALLEL KEY: STAINLESS STEEL
- SET SCREW: STEEL ZINC PLATED
- SPRING WASHER: STEEL ZINC PLATED
- NAMEPLATE: ALUMINIUM

FEATURES

- DESIGN: CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
- SEAT RING: HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5”)
- OPTIONS: STANDARD PLUG OR THROTTLE TYPE DISC AND/OR TANDEM BLOW DOWN
- OPERATION: HANDWHEEL - ELECTRIC OR PNEUMATIC ACTUATOR
- ACCESSORIES: LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS

- BODY: SA105N (1.0460) - SA182-F12 (1.0460) - SA182-F22 (1.0460) - SA182-F91 (1.4903) (OTHERS ON REQUEST)
- TRIM: 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
- STEM PACKING: GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>SEATBORE-A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 (3/4&quot;)</td>
<td>3-16</td>
<td>16</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>8.2 (17.9 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>3-18</td>
<td>20 (0.79)</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>8.1 (17.6 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>3-18 (0.12 - 0.71)</td>
<td>20 (0.79)</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>10.4 (22.7 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>19-28 (0.75 - 1.10)</td>
<td>28 (1.10)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>35.1 (77.4 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>3-18 (0.12 - 0.71)</td>
<td>20 (0.79)</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>10.4 (22.7 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>19-36 (0.75 - 1.42)</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>33.9 (74.7 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>3-18 (0.12 - 0.71)</td>
<td>20 (0.79)</td>
<td>105 (4.13)</td>
<td>239 (9.41)</td>
<td>105 (4.13)</td>
<td>200 (7.87)</td>
<td>10.4 (22.8 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>19-36 (0.75 - 1.42)</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>33.9 (74.7 LB)</td>
</tr>
</tbody>
</table>

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Website: www.hpvalves.com

Member of Indutrade AB
FORGED STEEL CONT. BLOW DOWN VALVES, BONNETLESS - FIG 09.3

STANDARDS

DESIGN
ASME B16.34 - BS-EN 15761 - DIN 3840 - EN 12516

API WELDING ENDS
ASME B16.25 - DIN-EN 9692-1 - EN 12627

OTHER END CONNECTIONS
CLAMP CONNECTORS / FLANGED RT OR RF

MANUFACTURER’S STANDARD (FLANGED VALVES ACC. THE RELEVANT STANDARD)

PRESSURE TESTING
ASME B16.34 - API 598 - DIN 3230 - EN 12266

MATERIALS

01 BODY VARIOUS (SEE BELOW)
02 SEAT STELLITE
03 VENTURI ASTM-A182-F316
04 LOOSE BACKSEAT AISI 304
05 STEM PACKING GRAPHITE
07 GLAND / FLANGE AISI 304 / CARBON STEEL
09 GLAND BOLT / NUT ASTM-A193-B7 / ASTM-A194-2H
11 STEM / DISC 17 CR / STELLITED (SEE BELOW)
12 YOKE CARBON STEEL
13 YOKE SLEEVE ALUMINIUM-BRONZE
14 HANDWHEEL CARBON STEEL
15 POSITION INDICATOR 17 CR
23 PARALLEL KEY STAINLESS STEEL
25 SET SCREW STEEL ZINC PLATED
27 SPRING WASHER STEEL ZINC PLATED
32 THIN NUT STEEL ZINC PLATED
44 NAMEPLATE ALUMINIUM

FEATURES

DESIGN
CONSTRUCTION INTEGRAL BONNET (BONNETLESS) AND LOOSE BACKSEAT (FIXED BACKSEAT OPTIONAL)
SEAT RING HIGH TEMPERATURE VACUUM BRAZED IN SEAT RING WITH THICKNESS > 5 MM (1/5"
OPTIONS STANDARD PLUG OR THROTTLE TYPE DISC AND/OR TANDEM BLOW DOWN
OPERATION HANDWHEEL - ELECTRIC OR PNEUMATIC ACTUATOR
ACCESSORIES LIMIT SWITCHES - LOCKING DEVICE - LIVE LOADED GLAND (OTHERS ON REQUEST)

MATERIALS
BODY SA182-F316(1) - SA350-LF2 - SA182-F92 - 16Mo3
TRIM 17CR/STELLITE - F316/STELLITE (OTHERS ON REQUEST)
STEM PACKING GRAPHITE WITH INTEGRAL OR STAINLESS STEEL REINFORCED ANTI EXTRUSION RINGS

MAIN DIMENSIONS IN MM (INCH)

<table>
<thead>
<tr>
<th>NOM. SIZE</th>
<th>SEATBORE-A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>WEIGHT KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 (3/4&quot;)</td>
<td>3-16 (0.12 - 0.63)</td>
<td>16 (0.63)</td>
<td>75 (2.95)</td>
<td>239 (9.41)</td>
<td>75 (2.95)</td>
<td>200 (7.87)</td>
<td>7.7 (17.0 LB)</td>
</tr>
<tr>
<td>25 (1&quot;)</td>
<td>3-18 (0.12 - 0.71)</td>
<td>20 (0.79)</td>
<td>75 (2.95)</td>
<td>239 (9.41)</td>
<td>75 (2.95)</td>
<td>200 (7.87)</td>
<td>7.5 (16.5 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>3-18 (0.12 - 0.71)</td>
<td>20 (0.79)</td>
<td>125 (4.92)</td>
<td>239 (9.41)</td>
<td>125 (4.92)</td>
<td>350 (13.78)</td>
<td>35.1 (78.0 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>19-28 (0.75 - 1.10)</td>
<td>28 (1.10)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>9.6 (25.1 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>3-18 (0.12 - 0.71)</td>
<td>20 (0.79)</td>
<td>125 (4.92)</td>
<td>239 (9.41)</td>
<td>125 (4.92)</td>
<td>200 (7.87)</td>
<td>33.9 (75.3 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>19-36 (0.75 - 1.42)</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>11.7 (26.0 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>3-18 (0.12 - 0.71)</td>
<td>20 (0.79)</td>
<td>125 (4.92)</td>
<td>239 (9.41)</td>
<td>125 (4.92)</td>
<td>200 (7.87)</td>
<td>33.9 (75.3 LB)</td>
</tr>
</tbody>
</table>
FORGED STEEL 3-STAGE BLOW DOWN VALVES, BONNETLESS - FIG 09.3.9

**STANDARDS**

<table>
<thead>
<tr>
<th>Design</th>
<th>ASME B16.34 - BS 5352 - DIN 3840 - EN 12516</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butt Welding Ends</td>
<td>ASME B16.25 - DIN 2559 - EN 12627</td>
</tr>
<tr>
<td>Socket Welding Ends</td>
<td>ASME B16.11 - EN 12760</td>
</tr>
<tr>
<td>Other End Connections</td>
<td>Clamp Connectors / Flanged RTJ or RF</td>
</tr>
<tr>
<td>End-to-End Dimensions</td>
<td>Manufacturer's Standard (Flanged Valves ACC. The Relevant Standard)</td>
</tr>
<tr>
<td>Pressure Testing</td>
<td>ASME B16.34 - BS 6755 - API 598 - DIN 3230 - EN 12266</td>
</tr>
</tbody>
</table>

**MATERIALS**

<table>
<thead>
<tr>
<th>No.</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Body</td>
</tr>
<tr>
<td>02</td>
<td>3-Stage Seat</td>
</tr>
<tr>
<td>04</td>
<td>Loose Backseat</td>
</tr>
<tr>
<td>05</td>
<td>Stem Packing</td>
</tr>
<tr>
<td>07</td>
<td>Gland / Flange</td>
</tr>
<tr>
<td>09</td>
<td>Gland Bolt / Nut</td>
</tr>
<tr>
<td>11</td>
<td>Stem / Disc</td>
</tr>
<tr>
<td>12</td>
<td>Yoke</td>
</tr>
<tr>
<td>13</td>
<td>Yoke Sleeve</td>
</tr>
<tr>
<td>14</td>
<td>Handwheel</td>
</tr>
<tr>
<td>15</td>
<td>Position Indicator</td>
</tr>
<tr>
<td>23</td>
<td>Parallel Key</td>
</tr>
<tr>
<td>24</td>
<td>Parallel Key</td>
</tr>
<tr>
<td>25</td>
<td>Set Screw</td>
</tr>
<tr>
<td>26</td>
<td>Bearing</td>
</tr>
<tr>
<td>27</td>
<td>Springwasher</td>
</tr>
<tr>
<td>32</td>
<td>Thin Nut</td>
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<tr>
<td>44</td>
<td>Nameplate</td>
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</tbody>
</table>

**FEATURES**

<table>
<thead>
<tr>
<th>Design</th>
<th>Construction: Integral Bonnet (Bonnetless) and Loose Backseat (Fixed Backseat Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat Ring</td>
<td>High Temperature Vacuum Brazed in Full Stellite 3-Stage Seat</td>
</tr>
<tr>
<td>Operation</td>
<td>Handwheel - Electric or Pneumatic Actuator</td>
</tr>
<tr>
<td>Accessories</td>
<td>Limit Switches - Locking Device - Live Loaded Gland (Others on Request)</td>
</tr>
</tbody>
</table>

**MATERIALS**

<table>
<thead>
<tr>
<th>Design</th>
<th>Body: SA105N - SA182-F12 - SA182-F22 - SA182-F91 (Others on Request)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem Packing</td>
<td>Graphite with Integral or Stainless Steel Reinforced Anti Extrusion Rings</td>
</tr>
</tbody>
</table>

**MAIN DIMENSIONS IN MM (INCH)**

<table>
<thead>
<tr>
<th>Nom. Size</th>
<th>Flow-Area</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Weight KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 (1&quot;)</td>
<td>132 mm²</td>
<td>20 (0.79)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>36.6 (80.7 LB)</td>
</tr>
<tr>
<td>32 (1-1/4&quot;)</td>
<td>132 mm²</td>
<td>25 (0.98)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>36.2 (79.8 LB)</td>
</tr>
<tr>
<td>40 (1-1/2&quot;)</td>
<td>140 mm²</td>
<td>30 (1.18)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>34.2 (75.4 LB)</td>
</tr>
<tr>
<td>50 (2&quot;)</td>
<td>140 mm²</td>
<td>36 (1.42)</td>
<td>175 (6.89)</td>
<td>379 (14.92)</td>
<td>175 (6.89)</td>
<td>350 (13.78)</td>
<td>33.8 (74.5 LB)</td>
</tr>
</tbody>
</table>

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