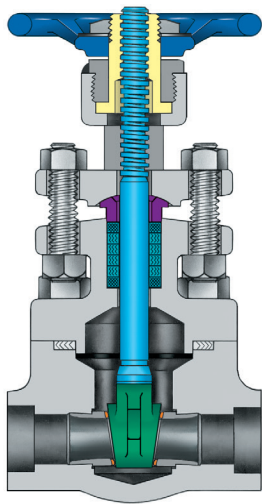


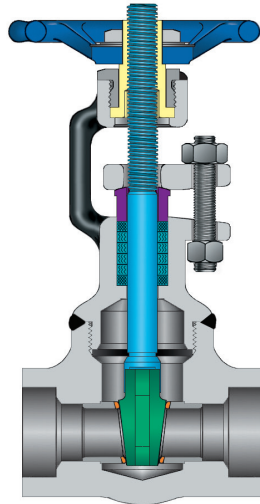
Threaded, socket weld and flanged

NPS ¼ – 2 (DN 8 – 50), ASME Class 800 (1975 psi @ 100°F),

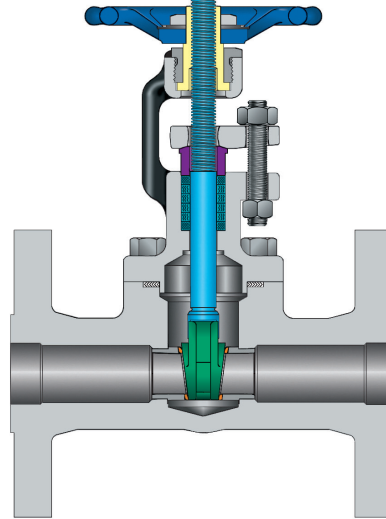
ASME Class 1500 (3705 psi @ 100°F), Flanged ASME Classes 150, 300, 600, 1500



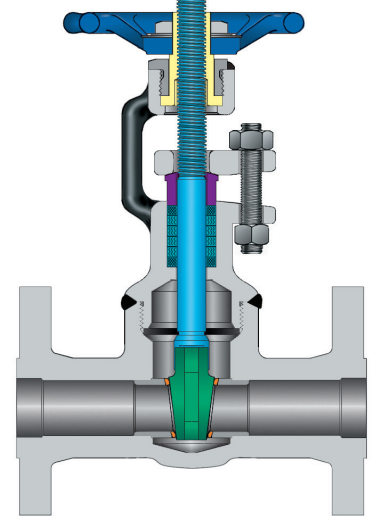
Bolted bonnet



Welded bonnet



Bolted bonnet flanged



Welded bonnet flanged

Design features

- Complies to API 602 and ASME B16.34 standards.
- A compact but extremely sturdy design for high pressure-temperature service.
- CoCr alloy hardfaced wedge (optional) ensures low friction and long service life.
- For Class 1500 valves and for steam service, seats are seal-welded to the body.
- Packing rings are pre-compressed in the packing chamber to ensure equal stress distribution, effectiveness of all rings and a high integrity seal.
- For welded bonnet valves, the bonnet is threaded in and torqued to an engineered torque value and the body bonnet joint is strength-welded, offering double protection against leakage. (body/bonnet threads and strength-weld).
- Fully guided wedge reduces wear on seating surfaces.
- Repairable 2-piece stem drive.

For other materials, trims,
and engineering data contact
Engineering

Figure numbers

| ASME Class | Bolted bonnet | Welded bonnet | Flanged bolted bonnet | Flanged welded bonnet |
|------------|---------------|---------------|-----------------------|-----------------------|
| 150 | — | — | 0054B | 0054W |
| 300 | — | — | 1054B | 1054W |
| 600 | — | — | 2054B | 2054W |
| 800 | 2054B | 2054W | — | — |
| 1500 | 3054B | 3054W | 3054B | 3054W |

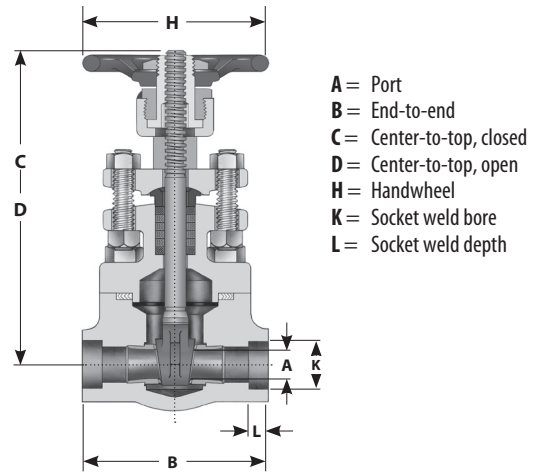
Optional features for special applications

- A special design is also available with double packing, leak-off connection, live-loading and a packing blowout for easy removal of old packing.
- Bellows seal compact API 602, Classes 800–1500 and flanged ASME Classes 150–1500 emission-free valves for high pressure, nuclear, and other critical service.
- Bolted bonnet gate valves for alkylation service (HF acid service).
- Parallel slide gate valves.
- API 603 NPS ½ – 1½ (DN 15 – 40), for ASME Classes 150, 300, and 600.

Quick sheet: API 602 forged steel gate valve

Standard materials

| Part | Materials |
|----------------------|---|
| Body | A105 |
| Bonnet | A105 |
| Gasket | Gr. 304 (stainless & graphite) |
| Packing flange | A105 |
| Seat | Gr. 410 (stainless) HF CoCr alloy |
| Wedge | CA15 HT with or without CoCr alloy hardfacing |
| Stem | Gr. 410 (stainless) |
| Stem nut | Gr. 416 (stainless) |
| Yoke bushing | 12L14 steel |
| Gland | Gr. 416 (stainless) |
| Packing | Graphite |
| Gland bolt | Gr. B6 |
| Gland nut | Gr. 2H |
| Cap screw | Gr. B7 |
| Handwheel | Malleable iron |
| Handwheel nut | Steel |
| Handwheel lockwasher | Steel |
| Name plate | Aluminum |



Bolted bonnet dimensions, weights, and Cv's

| Size NPS DN | ASME Class 800 | | | | | | | | lb / kg | Cv |
|------------------------|----------------|-------------|-------------|-------------|-------------|---------------|--------------|------------|------------|-----|
| | A | B | C | D | H | K | L | | | |
| ¼ ⁽¹⁾ 8 | 0.25 6 | 3.13 80 | 4.81 122 | 5.31 135 | 3 76 | 0.555 14.1 | 0.38 9.5 | 3.3 1.5 | 3.3 1.5 | 2 |
| ¾ ⁽¹⁾ 10 | 0.25 6 | 3.13 80 | 4.81 122 | 5.31 135 | 3 76 | 0.69 17.5 | 0.38 9.5 | 3.3 1.5 | 3.3 1.5 | 2.6 |
| ½ ⁽¹⁾ 15 | 0.38 10 | 3.13 80 | 4.81 122 | 5.31 135 | 3 76 | 0.855 21.7 | 0.38 9.5 | 3.3 1.5 | 3.3 1.5 | 5 |
| ¾ 20 | 0.5 13 | 3.25 83 | 5.91 150 | 6.75 171 | 3.5 89 | 1.065 27.1 | 0.5 12.7 | 5.3 2.4 | 5.3 2.4 | 10 |
| 1 25 | 0.69 18 | 3.5 89 | 6.38 162 | 7.38 188 | 3.5 89 | 1.33 33.8 | 0.5 12.7 | 6.4 2.9 | 6.4 2.9 | 20 |
| 1¼ 32 | 1.25 32 | 5 127 | 7.77 197 | 9.12 232 | 4.75 121 | 1.675 42.5 | 0.5 12.7 | 15 6.8 | 15 6.8 | 90 |
| 1½ 40 | 1.25 32 | 5 127 | 7.77 197 | 9.12 232 | 4.75 121 | 1.915 48.6 | 0.5 12.7 | 15 6.8 | 15 6.8 | 90 |
| 2 50 | 1.5 38 | 5.25 133 | 8.7 221 | 10.4 264 | 6 152 | 2.406 61.1 | 0.63 15.9 | 19 8.6 | 19 8.6 | 100 |

| Size NPS DN | ASME Class 1500 | | | | | | | | lb / kg | Cv |
|------------------------|-----------------|----------|--------------|--------------|-----------|---------------|--------------|------------|------------|-----|
| | A | B | C | D | H | K | L | | | |
| ¼ ⁽¹⁾ 8 | 0.25 6 | 4 102 | 7.13 181 | 7.75 197 | 3.5 89 | 0.555 14.1 | 0.38 9.5 | 11 5 | 11 5 | 2 |
| ¾ ⁽¹⁾ 10 | 0.35 9 | 4 102 | 7.13 181 | 7.75 197 | 3.5 89 | 0.69 17.5 | 0.38 9.5 | 11 5 | 11 5 | 5 |
| ½ ⁽¹⁾ 15 | 0.5 13 | 4 102 | 7.13 181 | 7.75 197 | 3.5 89 | 0.855 21.7 | 0.38 9.5 | 11 5 | 11 5 | 10 |
| ¾ 20 | 0.5 13 | 5 127 | 7.25 184 | 7.88 200 | 3.5 89 | 1.065 27.1 | 0.5 12.7 | 13 5.9 | 13 5.9 | 10 |
| 1 25 | 0.69 18 | 6 152 | 8.7 221 | 9.63 244 | 5 127 | 1.33 33.8 | 0.5 12.7 | 26 11.8 | 26 11.8 | 20 |
| 1¼ 32 | 1.25 32 | 7 178 | 9.12 232 | 10.63 270 | 6 152 | 1.675 42.5 | 0.5 12.7 | 34 15.4 | 34 15.4 | 90 |
| 1½ 40 | 1.25 32 | 7 178 | 9.12 232 | 10.63 270 | 6 152 | 1.915 48.6 | 0.5 12.7 | 34 15.4 | 34 15.4 | 90 |
| 2 50 | 1.5 38 | 9 229 | 10.56 268 | 12.3 312 | 10 254 | 2.406 61.1 | 0.63 15.9 | 58 26.3 | 58 26.3 | 100 |

Bolted bonnet full port dimensions, weights, and Cv's

| Size NPS DN | ASME Class 800 | | | | | | | | lb / kg | Cv |
|-------------------|----------------|-------------|-------------|--------------|-------------|---------------|--------------|------------|------------|-----|
| | A | B | C | D | H | K | L | | | |
| ¼ 8 | 0.25 6 | 3.25 83 | 5.9 150 | 6.63 168 | 3.5 89 | 0.555 14.1 | 0.38 9.5 | 6.2 2.8 | 6.2 2.8 | 2 |
| ¾ 10 | 0.35 9 | 3.25 83 | 5.9 150 | 6.63 168 | 3.5 89 | 0.69 17.5 | 0.38 9.5 | 6.2 2.8 | 6.2 2.8 | 5 |
| ½ 15 | 0.5 13 | 3.25 83 | 5.9 150 | 6.63 168 | 3.5 89 | 0.855 21.7 | 0.38 9.5 | 6.2 2.8 | 6.2 2.8 | 10 |
| ¾ 20 | 0.69 18 | 3.5 89 | 6.4 162 | 7.4 188 | 4.75 121 | 1.065 27.1 | 0.5 12.7 | 6.6 3 | 6.6 3 | 20 |
| 1 25 | 0.96 24 | 5 127 | 7.8 198 | 9.1 231 | 6 152 | 1.33 33.8 | 0.5 12.7 | 15 6.8 | 15 6.8 | 58 |
| 1¼ 32 | 1.25 32 | 5 127 | 7.8 198 | 9.1 231 | 6 152 | 1.675 42.5 | 0.5 12.7 | 15 6.8 | 15 6.8 | 90 |
| 1½ 40 | 1.5 38 | 5.25 133 | 8.6 218 | 10.4 264 | 6 152 | 1.915 48.6 | 0.5 12.7 | 20 9.1 | 20 9.1 | 100 |
| 2 50 | 2.00 51 | 6 152 | 10.9 277 | 13.12 333 | 8 203 | 2.406 61.1 | 0.63 15.9 | 24 10.9 | 24 10.9 | 220 |

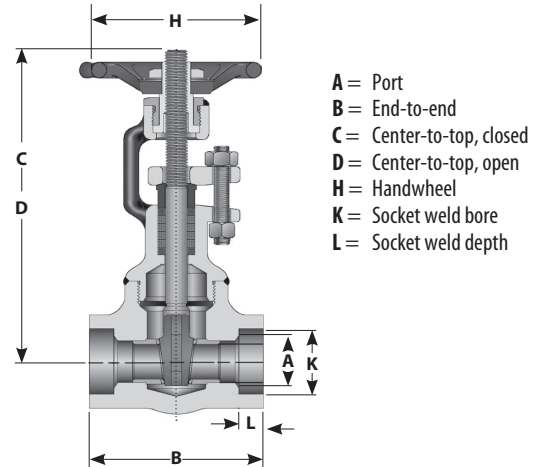
| Size NPS DN | ASME Class 1500 | | | | | | | | lb / kg | Cv |
|-------------------|-----------------|----------|-------------|--------------|-------------|---------------|--------------|------------|------------|-----|
| | A | B | C | D | H | K | L | | | |
| ¼ 8 | 0.25 6 | 4 102 | 7.1 180 | 7.8 198 | 3.5 89 | 0.555 14.1 | 0.38 9.5 | 10 4.5 | 10 4.5 | 2 |
| ¾ 10 | 0.35 9 | 4 102 | 7.1 180 | 7.8 198 | 3.5 89 | 0.69 17.5 | 0.38 9.5 | 10 4.5 | 10 4.5 | 5 |
| ½ 15 | 0.5 13 | 4 102 | 8.7 221 | 7.88 200 | 3.5 89 | 0.855 21.7 | 0.38 9.5 | 12 5.4 | 12 5.4 | 10 |
| ¾ 20 | 0.69 18 | 6 152 | 9.1 231 | 9.6 244 | 4.75 121 | 1.065 27.1 | 0.5 12.7 | 24 10.9 | 24 10.9 | 20 |
| 1 25 | 0.96 24 | 7 178 | 9.1 231 | 10.6 269 | 6 152 | 1.33 33.8 | 0.5 12.7 | 32 14.5 | 32 14.5 | 58 |
| 1¼ 32 | 1.25 32 | 7 178 | 9.1 231 | 10.6 269 | 6 152 | 1.675 42.5 | 0.5 12.7 | 32 14.5 | 32 14.5 | 90 |
| 1½ 40 | 1.5 38 | 9 229 | 10.6 269 | 12.3 312 | 10 254 | 1.915 48.6 | 0.5 12.7 | 50 22.7 | 50 22.7 | 100 |
| 2 50 | 1.89 48 | 9 229 | 11.5 292 | 13.75 349 | 10 254 | 2.406 61.1 | 0.63 15.9 | 60 27.2 | 60 27.2 | 220 |

(1) Only for A105 (carbon) and A182 (stainless F316/F316L) body material in socket weld, threaded, butt weld or combination weld ends and 800 pressure class. All other materials in 800 pressure class, refer to the NPS ¾ (DN 20) design.

Note: Cv refers to low coefficients. Kv is the metric equivalent of Cv. $K_v = C_v \times 0.85$.

Bolted bonnet and welded bonnet flanged face-to-face dimensions

| Size NPS DN | ASME Class 150 | ASME Class 300 | ASME Class 600 | ASME Class 1500 | ASME Class 2500 |
|--------------------------|----------------|----------------|----------------|-----------------|-----------------|
| 1/4 ⁽²⁾ 8 | 4 102 | 5.5 139 | 6.5 165 | 8.5 216 | — |
| 3/8 ⁽²⁾ 10 | 4 102 | 5.5 139 | 6.5 165 | 8.5 216 | — |
| 1/2 ⁽²⁾ 15 | 4.25 108 | 5.5 139 | 6.5 165 | 8.5 216 | 10.38 264 |
| 3/4 20 | 4.62 117 | 6 152 | 7.5 191 | 9 229 | 10.75 273 |
| 1 25 | 5 127 | 6.5 165 | 8.5 216 | 10 254 | 12.12 308 |
| 1 1/4 32 | 5.5 140 | 7 178 | 9 229 | 11 279 | 13.75 349 |
| 1 1/2 40 | 6.5 165 | 7.5 191 | 9.5 241 | 12 305 | 15.12 384 |
| 2 50 | 7 178 | 8.5 216 | 11.5 292 | 14.5 368 | 17.75 451 |



Welded bonnet dimensions, weights, and Cv's

| Size NPS DN | ASME Class 800 | | | | | | | | lb / kg | Cv |
|--------------------------|----------------|-------------|-------------|-------------|-------------|---------------|--------------|------------|---------|----|
| | A | B | C | D | H | K | L | | | |
| 1/4 ⁽³⁾ 8 | 0.25 6 | 2.88 73 | 4.63 117 | 5.13 130 | 3 76 | 0.555 14.1 | 0.38 9.5 | 2.5 1.1 | 2 | |
| 3/8 ⁽³⁾ 10 | 0.25 6 | 2.88 73 | 4.63 117 | 5.13 130 | 3 76 | 0.69 17.5 | 0.38 9.5 | 2.5 1.1 | 2.6 | |
| 1/2 ⁽³⁾ 15 | 0.38 10 | 2.88 73 | 4.63 117 | 5.13 130 | 3 76 | 0.855 21.7 | 0.38 9.5 | 2.5 1.1 | 5 | |
| 3/4 20 | 0.5 13 | 3.25 83 | 5.9 150 | 6.63 168 | 3.5 89 | 1.065 27.1 | 0.5 12.7 | 4.4 2 | 10 | |
| 1 25 | 0.69 18 | 3.5 89 | 6.3 160 | 7.2 182 | 3.5 89 | 1.33 33.8 | 0.5 12.7 | 5.3 2.4 | 20 | |
| 1 1/4 32 | 1.25 32 | 5 127 | 7.77 197 | 9.12 231 | 4.75 121 | 1.675 42.5 | 0.5 12.7 | 11 5 | 90 | |
| 1 1/2 40 | 1.25 32 | 5 127 | 7.77 197 | 9.12 231 | 4.75 121 | 1.915 48.6 | 0.5 12.7 | 11 5 | 90 | |
| 2 50 | 1.5 38 | 5.25 133 | 8.5 216 | 10.4 264 | 6 152 | 2.406 61.1 | 0.63 15.9 | 16 7.3 | 100 | |

| Size NPS DN | ASME Class 1500 | | | | | | | | lb / kg | Cv |
|--------------------------|-----------------|-------------|-------------|-------------|-------------|---------------|--------------|------------|---------|----|
| | A | B | C | D | H | K | L | | | |
| 1/4 ⁽³⁾ 8 | 0.25 6 | 3.5 89 | 6.4 163 | 7.1 180 | 3.5 89 | 0.555 14.1 | 0.38 9.5 | 6.5 2.9 | 2 | |
| 3/8 ⁽³⁾ 10 | 0.25 6 | 3.5 89 | 6.4 163 | 7.1 180 | 3.5 89 | 0.69 17.5 | 0.38 9.5 | 6.5 2.9 | 2 | |
| 1/2 ⁽³⁾ 15 | 0.35 9 | 3.5 89 | 6.4 163 | 7.1 180 | 3.5 89 | 0.855 21.7 | 0.38 9.5 | 6.5 2.9 | 5 | |
| 3/4 20 | 0.5 13 | 3.5 89 | 6.4 163 | 7.1 180 | 3.5 89 | 1.065 27.1 | 0.5 12.7 | 6.8 3.1 | 10 | |
| 1 25 | 0.69 18 | 5 127 | 8.1 206 | 8.9 226 | 4.75 121 | 1.33 33.8 | 0.5 12.7 | 13 5.9 | 20 | |
| 1 1/4 32 | 1.25 32 | 5.25 133 | 9.4 239 | 10.8 274 | 6 152 | 1.675 42.5 | 0.5 12.7 | 20 9.1 | 90 | |
| 1 1/2 40 | 1.25 32 | 5.25 133 | 9.4 239 | 10.8 274 | 6 152 | 1.915 48.6 | 0.5 12.7 | 20 9.1 | 90 | |
| 2 50 | 1.5 38 | 10 254 | 12.4 315 | 14.1 358 | 10 254 | 2.406 61.1 | 0.63 15.9 | 50 22.7 | 100 | |

Welded bonnet full port dimensions, weights, and Cv's

| Size NPS DN | ASME Class 800 | | | | | | | | lb / kg | Cv |
|--------------------------|----------------|-------------|-------------|-------------|------------|-------------|------------|------------|---------|----|
| | A | B | C | D | H | K | L | | | |
| 1/2 ⁽³⁾ 15 | 0.5 13 | 3.25 83 | 5.9 150 | 6.7 170 | 3.5 89 | 0.855 22 | 0.38 10 | 4.4 2 | 10 | |
| 3/4 20 | 0.69 18 | 3.5 89 | 6.2 157 | 7 178 | 4.8 122 | 1.065 27 | 0.5 13 | 5.3 2.4 | 20 | |
| 1 25 | 0.96 24 | 5 127 | 7.8 198 | 9.1 231 | 6 152 | 1.33 34 | 0.5 13 | 11 5 | 58 | |
| 1 1/4 32 | 1.25 32 | 5 127 | 7.8 198 | 9.1 231 | 6 152 | 1.675 43 | 0.5 13 | 11 5 | 90 | |
| 1 1/2 40 | 1.5 38 | 5.25 133 | 8.8 224 | 10.4 264 | 6 152 | 1.915 49 | 0.5 13 | 16 7.3 | 100 | |
| 2 50 | 2 51 | 6 152 | 10.9 277 | 13.1 333 | 8 203 | 2.406 61 | 0.62 16 | 21 9.5 | 220 | |

| Size NPS DN | ASME Class 1500 | | | | | | | | lb / kg | Cv |
|--------------------------|-----------------|-------------|-------------|-------------|------------|-------------|------------|------------|---------|----|
| | A | B | C | D | H | K | L | | | |
| 1/2 ⁽³⁾ 15 | 0.5 13 | 3.5 89 | 6.4 163 | 7.1 180 | 3.5 89 | 0.855 22 | 0.38 10 | 6.8 3.1 | 10 | |
| 3/4 20 | 0.69 18 | 5 127 | 8 203 | 8.8 224 | 4.8 122 | 1.065 27 | 0.5 13 | 14 6.4 | 20 | |
| 1 25 | 0.96 24 | 5.25 133 | 9.4 239 | 10.8 274 | 6 152 | 1.33 34 | 0.5 13 | 20 9.1 | 58 | |
| 1 1/4 32 | 1.25 32 | 5.25 133 | 9.4 239 | 10.8 274 | 6 152 | 1.675 43 | 0.5 13 | 20 9.1 | 90 | |
| 1 1/2 40 | 1.5 38 | 10 254 | 12.4 315 | 14.1 358 | 10 254 | 1.915 49 | 0.5 13 | 50 22.7 | 100 | |
| 2 50 | 2 51 | 10 254 | 12.1 307 | 14.3 363 | 10 254 | 2.406 61 | 0.62 16 | 60 27.2 | 220 | |

(2) Only for A105 (carbon) and A182 (stainless F316/F316L) body material in RF end connections, bolted bonnet design and pressure classes 150, 300, and 600. All other materials in pressure classes 150, 300, and 600, refer to the NPS 3/4 (DN 20) design.

(3) Only for A105 (carbon) body material in socket weld, threaded, butt weld or combination weld ends and 800 pressure class. All other materials in 800 pressure class, refer to the NPS 3/4 (DN 20) design.

Note: Cv refers to low coefficients. Kv is the metric equivalent of Cv. Kv = Cv x 0.85.