



Type GTC

**Gate Valves
Cast Steel
Pressure seal
Buttwelded end
Class 900, 1500 & 2500
50 - 400 mm
(2" - 16")**

Applications

- Power stations, general industry, process engineering
- For water, steam, gas, oil & other non-aggressive media
- Further applications on request

Operating Data

- Pressure up to 431 bar (6250 psi)
- Temperature up to +593 °C / 1100°F
- Pressure-temperature ratings as per ASME B 16.34, Special class

Materials

ANSI Special class (as per ASME B 16.34)

- # 900/1500/2500 - A216 WCB from 0°C to 425 °C
- # 900/1500/2500 - A217 WC6/WC9 from 0 °C to 593 °C
- # Other materials on request

Design

- As per ASME B 16.34
- Pressure Seal Bonnet Design
- Stellite hard-faced Seats & Disc surface
- Graphite gaskets & packings with Braided wiping rings
- Direct retrofitting of Actuator
- Reduced bore
- Double disc wedge design

Design Specifications

General valve design & pressure, temperature rating : ASME B 16.34 Special class
Butt weld end design : ASME B 16.25
End to end dimension : ASME B 16.10
Testing : API 598

Variants on Request

- By-pass execution
- Actuator execution / Gear execution
- Bonnet pressure relief execution
- Full bore execution
- Position indicator
- Locking arrangement
- Other materials
- Other executions

Remarks

Forged Valves leaflet no. : 7240.1/5-10
Pressure Seal Globe Valve leaflet no. : 7242.2/6-10
Pressure Seal Check Valve leaflet no. : 7243.2/6-10
Cast Steel Gate Valve leaflet no. : 7244.2/5-10
Cast Steel Globe Valve leaflet no. : 7245.2/5-10
Cast Steel Check Valve leaflet no. : 7246.2/5-10
Operating instructions no : 0500.80/03-18 G3

On all enquiries / orders please specify :

1. Type
2. ANSI Pressure class
3. Size
4. Design pressure/temperature
5. Operating pressure
6. Operating temperature
7. Differential pressure
8. Material of construction
9. Flow medium
10. Flow rate Min./Max.
11. Type of end connection
12. Pipe schedule ID / OD
13. Variants
14. Leaflet number
15. Valve data sheet (if applicable)

When ordering spares, indicate valve serial number.



Product features to our customer benefit

- Stop Nut for Stroke Limitation.
- Stem Nut with thrust bearings enables Retrofitting of Actuators at Site.
- Burnished Stem. 13% Cr. (Hardened)
- Two Piece Self-Aligning Gland arrangement.
- Graphite Packing rings. Top & Bottom Ring - Braided.
- Spacer Ring - Prevent damage to Gasket.
- Seat ring - ST6 (HF), Seal Welded to Body
- * Body Special Class to ASME B 16.34
- Segmental Rings/ Thrust rings
- Graphite Gasket.
- Bonnet - Special Class as per ASME B16.34
- Double Disc Gate arrangement.
- Pr. Relief Hole
- Seal Weld
- Flow Direction

- Valves meets ASME B 16.34 Special class requirements
- Unique Seat design ensures low operating torque
- Compact Yoke design ensures low valve weight
- Stop nut prevents over tightening of double disc gate
- Designed to retrofit valve with Actuator at site without disassembly of pressure retaining parts

Flow Seal

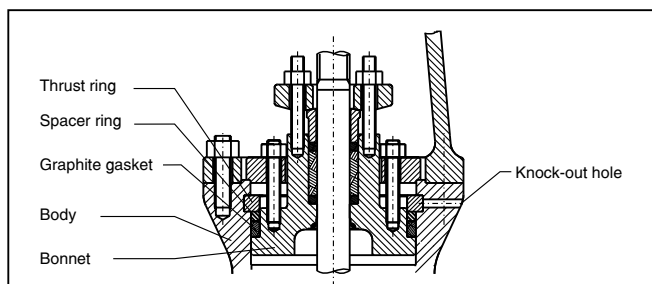
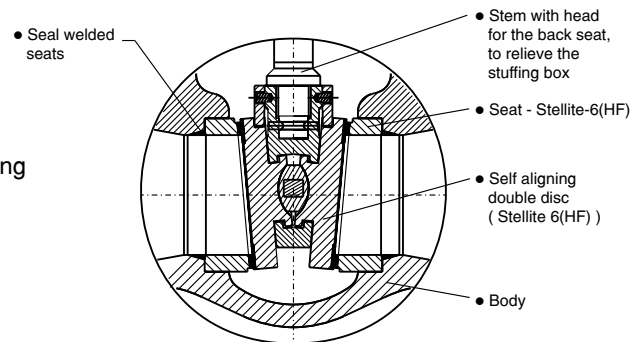
- Fully stellited Body & Disc seats
- Seat rings - seal welded to body
- Lapped Seat & Disc faces for leak tightness
- Streamlined flow path ensures minimum pressure drop

Disc Design

- Self aligning double disc arrangement ensures perfect seating
- Wedging action ensures leak tightness
- Leak tightness at low & high differential pressure
- Extended disc wear life by possibility of shim addition

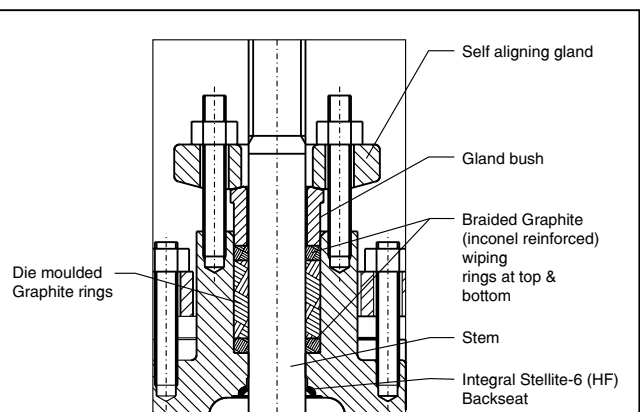
Stem Wedge Connection

- Strong stem-disc joint capable of withstanding higher operating forces



Pressure Seal Bonnet

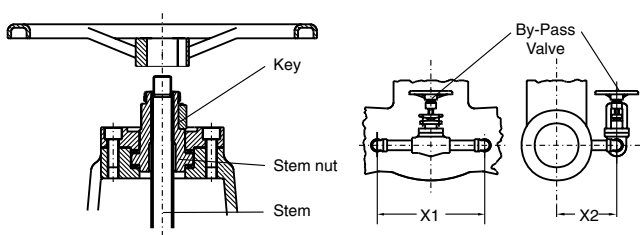
- Die moulded graphite gasket
- Segmental ring arrangement with knock out hole ensures easy disassembly



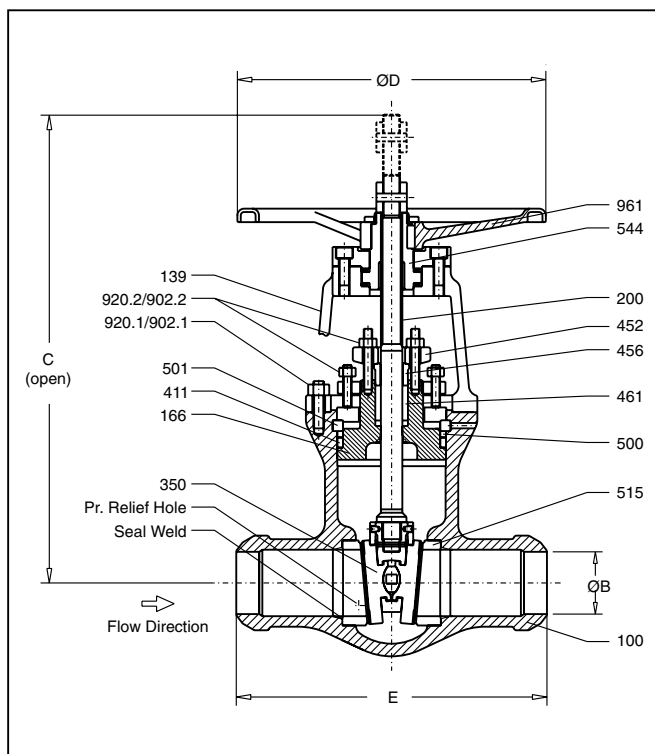
Gland Seal

- Die moulded graphite rings ensures effective sealing to atmosphere
- Top & bottom rings are braided graphite and inconel reinforced
- Braided rings offer smooth wiping action thereby arresting graphite depletion
- Smooth finished & polished stem and smooth stuffing box surfaces improve gland sealing life
- Two piece self aligning gland arrangement
- Integral hard faced back seat for maximum service life

Retrofitting of Actuator & By-pass Execution



Mount Actuator with non-thrust base. Type 'E' or 'B' after removing handwheel.



Dimensions in mm

Class 900 RB

| Size (in) | 2" | 3x2x3 | 4x3x4 | 6x4x6 | 8x6x8 | 10x8x10 | 12x10x12 |
|--------------------|-------|-------|-------|-------|-------|---------|----------|
| E | 215.9 | 304.8 | 355.6 | 508.0 | 660.4 | 787.4 | 914.4 |
| ØB* | 49.2 | 73.5 | 92.0 | 140.0 | 182.5 | 230.0 | 273.0 |
| C _(max) | 480.0 | 480.0 | 580.0 | 720.0 | 980.0 | 1200 | 1530 |
| ØD | 254.0 | 254.0 | 356.0 | 457.0 | 457.0 | 610.0 | 610.0 |

* Schedule 80 up to 3". Schedule 120 for 4" and above.
Alternate schedule on request.

Class 1500 RB

| Size (in) | 3x2x3 | 4x3x4 | 6x4x6 | 8x6x8 | 10x8x10 | 12x10x12 | 14x12x14 | 16x14x16 |
|--------------------|-------|-------|-------|-------|---------|----------|----------|----------|
| E | 304.8 | 406.4 | 558.8 | 711.2 | 863.6 | 990.6 | 990.6 | 1041.4 |
| ØB* | 66.5 | 87.5 | 132.0 | 173.0 | 216.0 | 257.0 | 284.0 | 325.5 |
| C _(max) | 530.0 | 595.0 | 740.0 | 1040 | 1230 | 1440 | 1850 | 1960 |
| ØD | 254.0 | 356.0 | 457.0 | 610.0 | 610.0 | 610.0 | ** | ** |

* Schedule 160. Alternate schedule on request.

Class 2500 RB

| Size (in) | 3x2x3 | 4x3x4 | 6x4x6 | 8x6x8 | 10x8x10 | 12x10x12 |
|--------------------|-------|-------|-------|-------|---------|----------|
| E | 368.3 | 457.2 | 609.6 | 762.0 | 914.4 | 1041.4 |
| ØB* | 58.5 | 80.0 | 124.5 | 173.0 | 216.0 | 257.0 |
| C _(max) | 540.0 | 650.0 | 810.0 | 1030 | 1530 | 1580 |
| ØD | 254.0 | 457.0 | 508.0 | 610.0 | ** | ** |

* Schedule XXS up to 6". Schedule 160 for 8" and above.
Alternate schedule on request. ** - mandatory Gear Box

Class 1500 FB

| Size (in) | 2" | 3" | 4" | 6" | 8" | 10" | 12" |
|--------------------|-------|-------|-------|-------|-------|-------|-------|
| E | 215.9 | 304.8 | 406.4 | 558.8 | 711.2 | 863.6 | 990.6 |
| ØB* | 42.8 | 66.5 | 87.5 | 132.0 | 173.0 | 216.0 | 257.0 |
| C _(max) | 550.0 | 595.0 | 740.0 | 1040 | 1230 | 1440 | 1810 |
| ØD | 254.0 | 356.0 | 457.0 | 610.0 | 610.0 | 610.0 | ** |

* Schedule 160
Alternate schedule on request. ** - mandatory Gear Box

Class 2500 FB

| Size (in) | 2" | 3" | 4" | 6" | 8" | 10" | 12" |
|--------------------|-------|-------|-------|-------|-------|-------|--------|
| E | 279.4 | 368.3 | 457.2 | 609.6 | 762.0 | 914.4 | 1041.4 |
| ØB* | 38.0 | 58.5 | 80.0 | 124.5 | 173.0 | 216.0 | 257.0 |
| C _(max) | 550.0 | 670.0 | 780.0 | 1010 | 1530 | 1580 | 1970 |
| ØD | 254.0 | 457.0 | 508.0 | 610.0 | ** | ** | ** |

* Schedule XXS up to 6". Schedule 160 for 8" and above.
Alternate schedule on request. ** - mandatory Gear Box

Test Specifications

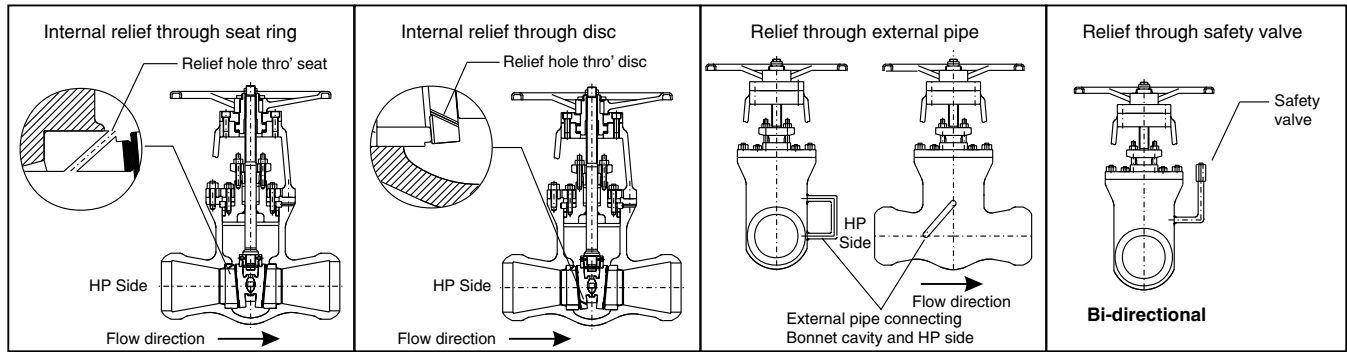
| Test / Test pressure | # 900 | | #1500 | | # 2500 | | Testing medium |
|----------------------|--------------------|-----------|--------------------|-----------|--------------------|-----------|----------------|
| | kg/cm ² | psi | kg/cm ² | psi | kg/cm ² | psi | |
| Shell | 238 | 3375 | 396 | 5625 | 660 | 9375 | Water |
| Seat / Back Seat | 174 | 2475 | 291 | 4125 | 484 | 6875 | |
| Seat | 4 to 7 | 58 to 100 | 4 to 7 | 58 to 100 | 4 to 7 | 58 to 100 | Air |

Materials

| Part No | Description | Material | | |
|-------------|---------------|------------------------|-------------------------------|------------------------------|
| 100 | Body | A 216-WCB | A 217-WC9 | A 217-WC6 |
| 139 | Yoke | A 216-WCB | A 216-WCB | A 216-WCB |
| 166 | Bonnet * | A 216-WCB+ST6 | A 217-WC9+ST6 | A 217-WC6+ST6 |
| 200 | Stem | A 479-410-2 | A 479-410-2 | A 479-410-2 |
| 350 | Disc | A 216-WCB+ST6 | A 217-WC9+ST6 | A 217-WC9+ST6 |
| 411 | Gasket | Graphite | Graphite | Graphite |
| 452 | Gland Flange | A 216-WCB | A 216-WCB | A 216-WCB |
| 456 | Gland Bush | A 276-410 | A 276-410 | A 276-410 |
| 461 | Gland packing | Graphite | Graphite | Graphite |
| 500 | Spacer ring | A 217-CA15 / A 182-F22 | A 217-CA15 / A 182-F22 | A 217-CA15 / A 182-F22 |
| 501 | Thrust ring | A 182- F22 | A 182-F22 | A 182-F22 |
| 515 | Seat Ring | A 105 + ST6 | A 217-WC9+ST6 / A 182-F22+ST6 | A 217-WC9+ST6 / A182-F22+ST6 |
| 544 | Stem Nut | Al. Bronze | Al. Bronze | Al. Bronze |
| 902.1/902.2 | Stud | A 193-B7 | A 193-B16 | A 193-B16 |
| 902.2/920.2 | Hex. Nut | A 194-2H | A 194-4 / 7 | A 194-4 / 7 |
| 961 | Hand wheel | SG IRON | SG IRON | SG IRON |

Integral Bonnet back seat St6 (HF)

Pressure Relief Arrangement : (Optional safety devices)



Important Note : KSB standard valve is provided with safety arrangement through a relief hole on Seat ring or disc.
Customer to specify requirement of safety arrangement depending on the application of Gate valve.
For spring loaded safety valve; refer leaflet number 7300.1/ 3 -10

**Rating for Group 1.1 Material : A 216 Gr. WCB⁽¹⁾
Special Class**

| Temperature | | # 900 | | # 1500 | | # 2500 | |
|-------------|-----------|-------|--------------------|--------|--------------------|--------|--------------------|
| °F | °C | psi | kg/cm ² | psi | kg/cm ² | psi | kg/cm ² |
| -20 to 100 | -17 to 38 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 200 | 93.3 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 300 | 148.9 | 2220 | 156.0 | 3700 | 260.0 | 6170 | 433.6 |
| 400 | 204.4 | 2200 | 154.6 | 3665 | 257.6 | 6105 | 429.0 |
| 500 | 260.0 | 2200 | 154.6 | 3665 | 257.6 | 6105 | 429.0 |
| 600 | 315.6 | 2200 | 154.6 | 3665 | 257.6 | 6105 | 429.0 |
| 650 | 343.3 | 2145 | 150.7 | 3575 | 251.2 | 5960 | 418.8 |
| 700 | 371.1 | 2075 | 145.8 | 3455 | 242.8 | 5760 | 404.8 |
| 750 | 398.9 | 1905 | 133.9 | 3170 | 222.8 | 5285 | 371.4 |
| 800 | 426.7 | 1545 | 108.6 | 2570 | 180.6 | 4285 | 301.1 |
| 850 | 454.4 | 1195 | 84.0 | 1995 | 140.2 | 3320 | 233.3 |
| 900 | 482.2 | 860 | 60.4 | 1435 | 100.8 | 2395 | 168.3 |
| 950 | 510.0 | 515 | 36.2 | 855 | 60.1 | 1430 | 100.5 |
| 1000 | 537.8 | 320 | 22.5 | 535 | 37.6 | 895 | 62.9 |

1) Permissible, but not recommended for prolonged use above 800°F

**Rating for Group 1.3 Material : A 352 Gr. LCB⁽¹⁾
Special Class**

| Temperature | | # 900 | | # 1500 | | # 2500 | |
|-------------|-----------|-------|--------------------|--------|--------------------|--------|--------------------|
| °F | °C | psi | kg/cm ² | psi | kg/cm ² | psi | kg/cm ² |
| -20 to 100 | -17 to 38 | 2090 | 146.9 | 3480 | 244.6 | 5805 | 407.9 |
| 200 | 93.3 | 2090 | 146.9 | 3480 | 244.6 | 5805 | 407.9 |
| 300 | 148.9 | 2090 | 146.9 | 3480 | 244.6 | 5805 | 407.9 |
| 400 | 204.4 | 2090 | 146.9 | 3480 | 244.6 | 5805 | 407.9 |
| 500 | 260.0 | 2090 | 146.9 | 3480 | 244.6 | 5805 | 407.9 |
| 600 | 315.6 | 2090 | 146.9 | 3480 | 244.6 | 5805 | 407.9 |
| 650 | 343.3 | 2080 | 146.2 | 3470 | 243.9 | 5780 | 406.2 |
| 700 | 371.1 | 1985 | 139.5 | 3305 | 232.3 | 5510 | 387.2 |
| 750 | 398.9 | 1785 | 125.4 | 2980 | 209.4 | 4965 | 348.9 |
| 800 | 426.7 | 1465 | 103.0 | 2445 | 171.8 | 4070 | 286.0 |
| 850 | 454.4 | 1120 | 78.7 | 1865 | 131.1 | 3105 | 218.2 |
| 900 | 482.2 | 760 | 53.4 | 1265 | 88.9 | 2105 | 147.9 |
| 950 | 510.0 | 515 | 36.2 | 855 | 60.1 | 1430 | 100.5 |
| 1000 | 537.8 | 320 | 22.5 | 535 | 37.6 | 895 | 62.9 |

1) Not to be used over 650°F

**Rating for Group 1.9 Material : A 217 Gr. WC6⁽¹⁾⁽²⁾
Special Class**

| Temperature | | # 900 | | # 1500 | | # 2500 | |
|-------------|-----------|-------|--------------------|--------|--------------------|--------|--------------------|
| °F | °C | psi | kg/cm ² | psi | kg/cm ² | psi | kg/cm ² |
| -20 to 100 | -17 to 38 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 200 | 93.3 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 300 | 148.9 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 400 | 204.4 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 500 | 260.0 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 600 | 315.6 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 650 | 343.3 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 700 | 371.1 | 2200 | 154.6 | 3665 | 257.6 | 6110 | 429.4 |
| 750 | 398.9 | 2185 | 153.5 | 3645 | 256.1 | 6070 | 426.6 |
| 800 | 426.7 | 2160 | 151.8 | 3600 | 253.0 | 6000 | 421.6 |
| 850 | 454.4 | 2030 | 142.7 | 3385 | 237.9 | 5645 | 396.7 |
| 900 | 482.2 | 1760 | 123.7 | 2935 | 206.3 | 4895 | 344.0 |
| 950 | 510.0 | 1195 | 84.0 | 1995 | 140.2 | 3320 | 233.3 |
| 1000 | 537.8 | 810 | 56.9 | 1350 | 94.9 | 2250 | 158.1 |
| 1050 | 565.6 | 540 | 37.9 | 900 | 63.2 | 1500 | 105.4 |
| 1100 | 593.3 | 360 | 25.3 | 600 | 42.2 | 1000 | 70.3 |
| 1150 | 621.1 | 245 | 17.2 | 405 | 28.5 | 680 | 47.8 |
| 1200 | 648.9 | 155 | 10.9 | 255 | 17.9 | 430 | 30.2 |

1) Use Normalised and tempered material only.

2) Not to be used over 1100°F

**Rating for Group 1.10 Material : A 217 Gr. WC9⁽¹⁾⁽²⁾
Special Class**

| Temperature | | # 900 | | # 1500 | | # 2500 | |
|-------------|-----------|-------|--------------------|--------|--------------------|--------|--------------------|
| °F | °C | psi | kg/cm ² | psi | kg/cm ² | psi | kg/cm ² |
| -20 to 100 | -17 to 38 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 200 | 93.3 | 2250 | 158.1 | 3750 | 263.5 | 6250 | 439.2 |
| 300 | 148.9 | 2200 | 156.0 | 3695 | 259.7 | 6160 | 432.9 |
| 400 | 204.4 | 2185 | 153.5 | 3640 | 255.8 | 6065 | 426.2 |
| 500 | 260.0 | 2175 | 152.8 | 3620 | 254.4 | 6035 | 424.1 |
| 600 | 315.6 | 2165 | 152.1 | 3605 | 253.3 | 6010 | 422.3 |
| 650 | 343.3 | 2145 | 150.7 | 3580 | 251.6 | 5965 | 419.2 |
| 700 | 371.1 | 2120 | 149.0 | 3535 | 248.4 | 5895 | 414.3 |
| 750 | 398.9 | 2120 | 149.0 | 3535 | 248.4 | 5895 | 414.3 |
| 800 | 426.7 | 2120 | 149.0 | 3535 | 248.4 | 5895 | 414.3 |
| 850 | 454.4 | 2030 | 142.7 | 3385 | 237.9 | 5645 | 396.7 |
| 900 | 482.2 | 1800 | 126.5 | 3000 | 210.8 | 5000 | 351.4 |
| 950 | 510.0 | 1415 | 99.4 | 2360 | 165.8 | 3930 | 276.2 |
| 1000 | 537.8 | 1005 | 70.6 | 1670 | 117.4 | 2785 | 195.7 |
| 1050 | 565.6 | 655 | 46.0 | 1095 | 77.0 | 1820 | 127.9 |
| 1100 | 593.3 | 410 | 28.8 | 685 | 48.1 | 1145 | 80.5 |
| 1150 | 621.1 | 255 | 17.9 | 430 | 30.2 | 715 | 50.2 |
| 1200 | 648.9 | 155 | 10.9 | 255 | 17.9 | 430 | 30.2 |

1) Use Normalised and tempered material only.

2) Not to be used over 1100°F



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