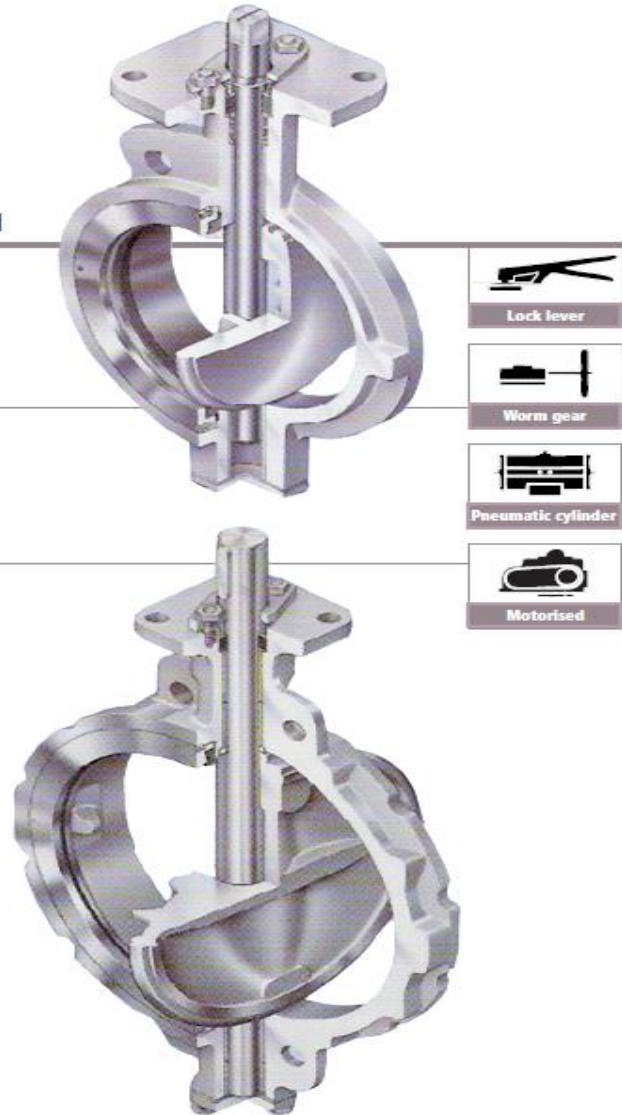


High performance butterfly valves to suit API standard

304A Wafer

304Q Lugged



Features and benefits

New stopper device

Japan Patent No.1769954 (80 to 300mm)
For the 80 to 300mm models, automatic aligning and disc overrun prevention are ensured by the special spherical design of the inner surface of the body disc hub edge. As for the 350 to 600mm models, a spacer ring is provided between the mating surfaces of the disc hub edge and inner surface of the body for disc alignment. Disc overrun is prevented by a protrusion on the inner surface of the body.

Double eccentric geometry

The axis of disc rotation is double offset to the seat ring. When the disc rotates, it unseats at a small turning angle by its cam effect. The design exhibits tight shut-off, reduced torques, chemical resistance, excellent throttling capabilities and the ability to operate with relatively high pressure drops. It also prevents seat abrasion and provides reliable sealing performance over long periods.

Bi-directional flow

Seals flow in both directions. The valves can be used even if the flow changes direction. (There are pressure limitations for each direction of flow. See chart for recommended specifications).

Easy replacement of the seat ring

The ball lock method is used to simplify replacement of the seat ring.

304A Wafer 304Q Lugged

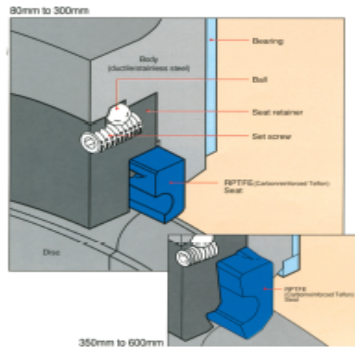
General Description

Designed to suit those severe conditions such as high temperature, high pressure or high velocity, which disallow the

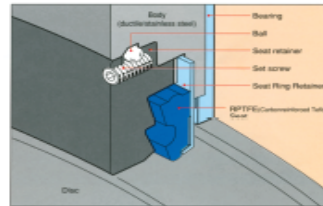
use of soft resilient seated butterfly valves.

Ideal for use in chemical processes and applications with low pressure steam and high temperature gas.

Fire Safe Seat (as Option)



RPTFE (Carbon Reinforced Teflon) as standard



Standard Specification

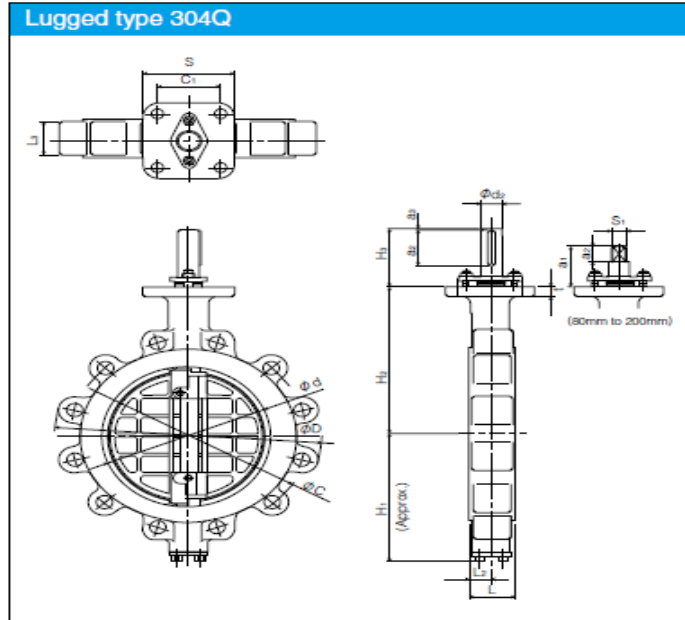
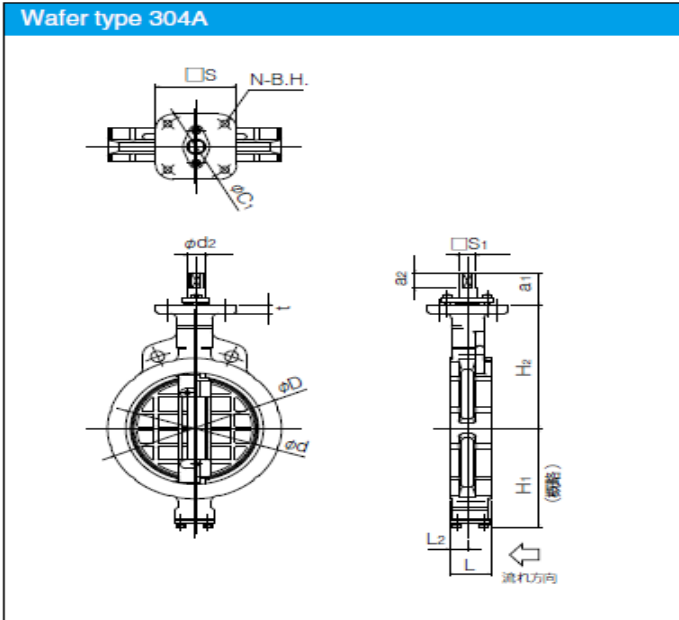
| Valve nominal size | | 80mm to 300mm | | 350 to 600mm | | |
|------------------------------|--------------------|---|---|--|---|--|
| Face-to-face dimensions | | API 609 (Class 150) | | API 609 (Class 150) ISO 5752 (25 Series) JIS B 2002 (47 Series) | | |
| Connection | | Wafer type | | | | |
| Pressure rating | | ANSI B16.34 Class 150lb (Seat rating is designed to suit API 609 150lb above zero degree C) | | | | |
| Applicable flange standard | | JIS 10K/16K/20K, ANSI 125/150lb, BS 10 Table F, BS 4504 PN 10/16, DIN NP 10/16 | | JIS 10K/16K/20K, ANSI 125/150lb, BS 10 Table F, BS 4504 PN 10/16, DIN NP 10/16 | | |
| Body shell test | | Max. 3.2MPa as per API 598 | | | | |
| Seat leak test | | Max. 2.3MPa as per API 598. Low pressure closure test is available upon request. | | | | |
| Max. working pressure #1 | | 2.0MPa | | | | |
| | | Bi-directional flow (Flow to disc side is recommended). | | | | |
| Working temperature range #2 | | Max. working pressure at reverse flow for 250mm and 300mm is 1.6MPa | | Max. working pressure at reverse flow is 1.0MPa | | |
| | | -29 to 232 degrees C (RPTFE) | | -29 to 232 degrees C (RPTFE) | | |
| Seat leakage | | -20 to 200 degrees C (White PTFE as option) | | | | |
| | | ISO 5208 Rate A, API 598-1996 | | | | |
| Standard materials | Body | SCPH2/WCB | SCS 14A/CF8M | SCPH2/WCB | SCS 13A/CF8 | |
| | Disc | SCS 13/CF8 (Hard chrome plating) | SCS 16A/CF3M (Hard chrome plating) | SCS 13/CF8 (Hard chrome plating) | | |
| | Stem | SUS 420 J2 | SUS 329 J1 (Over -10 degrees C) SUS 316L (Applicable for above -10 degrees and under 1.6MPa) SUS 329 J4L (Applicable for above -10 degrees C and over 1.6MPa) | SUS 420 J2 (under 1.0MPa) SUS 630 (over 1.0MPa) | SUS 304 (Under 1.0MPa) SUS 630 (Over 1.0MPa) | |
| | Seat ring | RPTFE (Carbon Reinforced Teflon) as standard, White Teflon seat, Fire safe seat as option | | | | |
| | Gland packing | RPTFE | | | | |
| Top flange | | ISO 5211 | | | | |
| Bonnet type | | Open bonnet | | | | |
| Actuators | Lock Gear | 80 to 150mm | | | | |
| | Worm gear | 80 to 600mm | | | | |
| | Pneumatic cylinder | | | | | |
| | Motorised | | | | | |
| Coating | | Silicon resin coating (grey N7) for 200 degrees C and lower. Heat resistant silver coating for over 200 degrees C. No painting for stainless steel. | | | | |

#1 Please see pressure-temperature rating table.

#2 Please consult us if the pressure exceeds 1.6MPa.

Tom Disco[®] 304A (Wafer) / 304Q (Lugged)

Dimension List



304A Dimension List

| Stem shape | Nominal size | | Dimension (mm) | | | | | | | | | | | | | | ISO 5211 Top Flange | Approx. Weight (kg) |
|------------|--------------|------|----------------|-----|-----|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|----|----------------|----|-----|---------------------|---------------------|
| | mm | inch | Φd | ΦD | L | L ₂ | H ₁ | H ₂ | a ₁ | a ₂ | □S ₁ | Φd ₂ | b | t ₂ | t | | | |
| 01 | 80 | 3 | 89 | 127 | 48 | 23 | 95 | 147 | 52.5 | 16.5 | 14 | 16 | — | — | 15 | F10 | 5 | |
| | 100 | 4 | 112 | 156 | 54 | 24 | 110 | 170 | 52.5 | 16.5 | 14 | 16 | — | — | 15 | F10 | 6.2 | |
| | 125 | 5 | 137 | 185 | 56 | 24 | 139 | 185 | 52.5 | 16.5 | 16 | 20 | — | — | 15 | F10 | 9.3 | |
| | 150 | 6 | 163 | 216 | 57 | 23 | 164 | 205 | 55.5 | 20 | 18 | 22 | — | — | 15 | F12 | 12.5 | |
| | 200 | 8 | 213 | 269 | 64 | 28 | 190 | 235 | 63 | 30 | 24 | 28 | — | — | 15 | F12 | 19 | |
| 02 | 250 | 10 | 263 | 330 | 71 | 31 | 236 | 283 | 108 | 67.3 | — | 32 | 10 | 3 | 18 | F14 | 33 | |
| | 300 | 12 | 315 | 381 | 81 | 35 | 246 | 310 | 111 | 72.3 | — | 35 | 10 | 3 | 18 | F14 | 42 | |
| | 350 | 14 | 350 | 416 | 92 | 39.5 | 308 | 340 | 113 | 72 | — | 38 | 10 | 3 | 18 | F14 | 61 | |
| | 400 | 16 | 400 | 475 | 102 | 39 | 348 | 372 | 113 | 72 | — | 42 | 12 | 3.5 | 18 | F14 | 88 | |
| | 450 | 18 | 450 | 534 | 114 | 43 | 366 | 406 | 141.5 | 68 | — | 45 | 12 | 3.5 | 20 | F16 | 135 | |
| | 500 | 20 | 500 | 589 | 127 | 50 | 405 | 442 | 141.5 | 79 | — | 49 | 14 | 4 | 20 | F16 | 173 | |
| | 600 | 24 | 600 | 693 | 154 | 64 | 461 | 493 | 141.5 | 80 | — | 59 | 16 | 5 | 20 | F16 | 272 | |

Top Flange Dimension

| ISO 5211 Top Flange | □S | ΦC ₁ | N | B.H. |
|---------------------|-----|-----------------|---|------|
| F10 | 102 | 102 | 4 | 11 |
| F12 | 125 | 125 | 4 | 13 |
| F14 | 140 | 140 | 4 | 19 |
| F16 | 165 | 165 | 4 | 23 |

| | |
|------------|------------------------------------|
| Stem shape | 01 : square 02 : round with key |
|------------|------------------------------------|

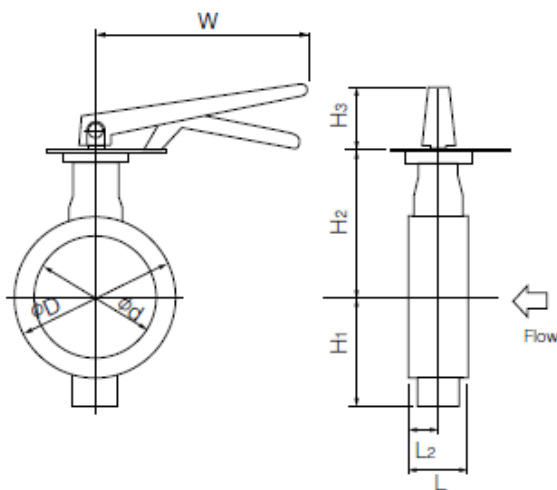
304Q Dimension List

| Nominal size | | Dimension (mm) | | | | | | | | | | | | | | | | Approx. Weight (kg) |
|--------------|------|----------------|-----|-----|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|-----|----|----------------|-------|---------------------|
| mm | inch | Φd | ΦD | L | L ₂ | L ₃ | H ₁ | H ₂ | H ₃ | Φd ₂ | a ₂ | a ₃ | S ₁ | S | t | C ₁ | ΦC | |
| 80 | 3 | 89 | 198 | 48 | 23 | 38 | 95 | 147 | 52.5 | 16 | 16.5 | — | 14 | 102 | 15 | 72 | 152.5 | 6 |
| 100 | 4 | 112 | 227 | 54 | 24 | 46 | 110 | 170 | 52.5 | 16 | 16.5 | — | 14 | 102 | 15 | 72 | 190.5 | 9.5 |
| 125 | 5 | 137 | 256 | 56 | 24 | 48 | 139 | 185 | 52.5 | 20 | 16.5 | — | 16 | 102 | 15 | 72 | 216 | 14 |
| 150 | 6 | 163 | 282 | 57 | 23 | 49 | 164 | 205 | 55.5 | 22 | 20 | — | 18 | 125 | 15 | 88.4 | 241.5 | 16 |
| 200 | 8 | 213 | 343 | 64 | 28 | 54 | 190 | 235 | 63 | 28 | 30 | — | 24 | 125 | 15 | 88.4 | 298.5 | 24 |
| 250 | 10 | 263 | 412 | 71 | 31 | 61 | 236 | 283 | 108 | 32 | 65 | 2 | — | 140 | 18 | 99 | 362 | 41 |
| 300 | 12 | 315 | 482 | 81 | 35 | 71 | 246 | 310 | 111 | 35 | 70 | 2 | — | 140 | 18 | 99 | 432 | 56 |
| 350 | 14 | 350 | 536 | 92 | 39.5 | 70 | 308 | 340 | 113 | 38 | 70 | 2 | — | 140 | 18 | 99 | 476.2 | 85 |
| 400 | 16 | 400 | 600 | 102 | 39 | 75 | 348 | 372 | 113 | 42 | 70 | 2 | — | 140 | 18 | 99 | 539.7 | 125 |
| 450 | 18 | 450 | 636 | 114 | 43 | 83 | 366 | 406 | 141.5 | 45 | 60 | 8 | — | 165 | 20 | 116.7 | 577.8 | 170 |
| 500 | 20 | 500 | 720 | 127 | 50 | 90 | 405 | 442 | 141.5 | 49 | 70 | 9 | — | 165 | 20 | 116.7 | 635 | 225 |
| 600 | 24 | 600 | 814 | 154 | 64 | 131 | 461 | 493 | 141.5 | 59 | 70 | 10 | — | 165 | 20 | 116.7 | 749.3 | 350 |

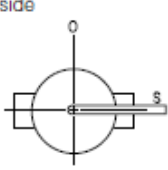
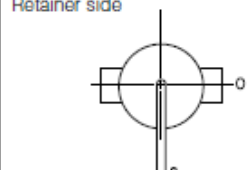
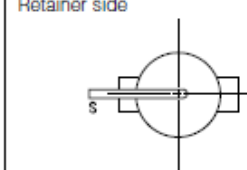
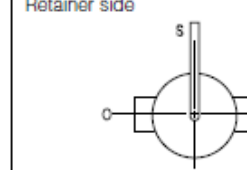
Lock lever type 304A-1T (80mm to 150mm)

| Nominal size | | Dimension (mm) | | | | | | | | | Lever type | Approx. Mass (kg) |
|--------------|------|----------------|----------|----|----------------|----------------|----------------|-----------------------------------|----------------|-----|------------|-------------------|
| mm | inch | ϕd | ϕD | L | L ₂ | H ₁ | H ₂ | Category | H ₃ | W | | |
| 80 | 3 | 89 | 127 | 48 | 23 | 95 | 147 | T ₁₀ , T ₂₀ | 117 | 300 | 1T-2 | 7.1 |
| 100 | 4 | 112 | 156 | 54 | 24 | 110 | 170 | T ₁₀ , T ₂₀ | 117 | 300 | 1T-2 | 8.3 |
| 125 | 5 | 137 | 185 | 56 | 24 | 139 | 185 | T ₁₀ , T ₂₀ | 117 | 300 | 1T-2 | 11.4 |
| 150 | 6 | 163 | 216 | 57 | 23 | 164 | 205 | T ₁₀ , T ₂₀ | 125 | 350 | 1T-3 | 14.6 |

■ 304A-1T



■ 1T Installation direction

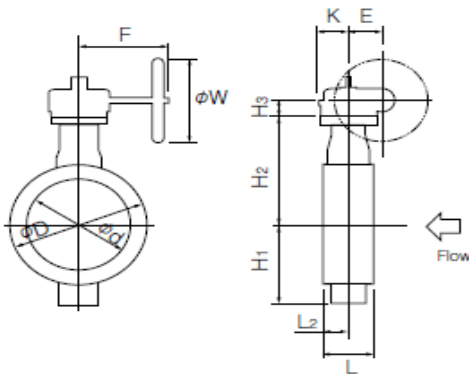
| | | | |
|--|--|---|--|
| <p>Retainer side</p>  <p>Stem side</p> <p>1TA</p> | <p>Retainer side</p>  <p>Stem side</p> <p>1TB</p> | <p>Retainer side</p>  <p>Stem side</p> <p>1TC</p> | <p>Retainer side</p>  <p>Stem side</p> <p>1TD</p> |
|--|--|---|--|

Tom Disco 304A (Wafer) / 304Q (Lugged)

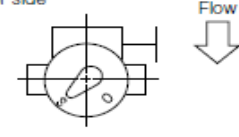
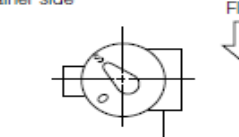
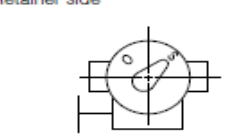
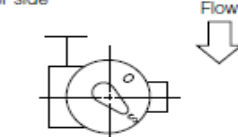
Worm gear type 304A-2U (80mm to 300mm) / 304A-2S (350mm to 600mm)

| Nominal size | | Dimension (mm) | | | | | | | | | | | | Gear type | Approx. Mass (kg) |
|--------------|------|----------------|----------|-----|----------------|----------------|----------------|-----------------------------------|----------------|------|-----|-------|----------|--------------|-------------------|
| mm | inch | ϕd | ϕD | L | L ₂ | H ₁ | H ₂ | Category | H ₃ | E | K | F | ϕW | | |
| 80 | 3 | 89 | 127 | 48 | 23 | 95 | 147 | T ₁₀ , T ₂₀ | 61 | 44 | 53 | 173.5 | 160 | 2U-2 | 7.9 |
| 100 | 4 | 112 | 156 | 54 | 24 | 110 | 170 | T ₁₀ , T ₂₀ | 61 | 44 | 53 | 173.5 | 160 | 2U-2 | 9.1 |
| 125 | 5 | 137 | 185 | 56 | 24 | 139 | 185 | T ₁₀ , T ₂₀ | 61 | 44 | 53 | 173.5 | 160 | 2U-2 | 12.4 |
| 150 | 6 | 163 | 216 | 57 | 23 | 164 | 205 | T ₁₀ , T ₂₀ | 77.5 | 87.5 | 90 | 222.5 | 200 | 2U-4 | 29 |
| 200 | 8 | 213 | 269 | 64 | 28 | 190 | 235 | T ₁₀ , T ₂₀ | 77.5 | 87.5 | 90 | 222.5 | 200 | 2U-4 | 35.5 |
| 250 | 10 | 263 | 330 | 71 | 31 | 236 | 283 | T ₁₀ , T ₂₀ | 90 | 87.5 | 90 | 222.5 | 280 | 2U-4 | 49.5 |
| 300 | 12 | 315 | 381 | 81 | 35 | 246 | 310 | T ₁₀ , T ₂₀ | 92 | 90 | 105 | 266 | 280 | 2U-5 | 64 |
| 350 | 14 | 350 | 416 | 92 | 39.5 | 308 | 340 | A,B,C | 97 | 117 | 164 | 335 | 355 | DGH-3 | 99 |
| | | | | | | | | A | 97 | 117 | 164 | 335 | 355 | DGH-3 | 124 |
| 400 | 16 | 400 | 475 | 102 | 39 | 348 | 372 | B,C | 215 | 140 | 198 | 402 | 450 | DGH-4 | 162 |
| | | | | | | | | A,B | 127 | 140 | 198 | 402 | 450 | DGH-4 | 198 |
| 450 | 18 | 450 | 534 | 114 | 43 | 366 | 406 | C | 127 | 140 | 198 | 432 | 355 | DGH-4+R/G5 | 200 |
| | | | | | | | | A,B | 127 | 140 | 198 | 402 | 450 | DGH-4 | 236 |
| 500 | 20 | 500 | 589 | 127 | 50 | 405 | 442 | C | 127 | 140 | 198 | 432 | 355 | DGH-4+R/G5 | 238 |
| | | | | | | | | A | 127 | 140 | 198 | 432 | 355 | DGH-4+R/G5 | 338 |
| 600 | 24 | 600 | 693 | 154 | 64 | 461 | 493 | B,C | 245 | 185 | 264 | 497 | 355 | DGH-4.5+R/G5 | 413 |

304A-2U/2S



2U/2S Installation direction

| | | | |
|---|---|--|---|
| Retainer side  Stem side | Retainer side  Stem side | Retainer side  Stem side | Retainer side  Stem side |
| 2UA/2SA | 2UB/2SB | 2UC/2SC | 2UD/2SD |