

## Butterfly Valve type 065



**Type 065**  
Standard for lug style and  
wafer style installation

**Type 065**  
with hand lever

**Type 065**  
with reduction gear

### Product description

The type 065 Butterfly Valve can be used universally as a shut-off or control valve in high purity water treatment or water filtration applications. All valves are cleaned and manufactured for Ultrapure water service.

#### Benefits/features

- PTFE-lined
- PFA encapsulated one-piece disc
- ANSI 150 and PN10, PN16 bolt pattern
- Pressure ratings up to 16 bar
- Temperature ratings up to 200°C

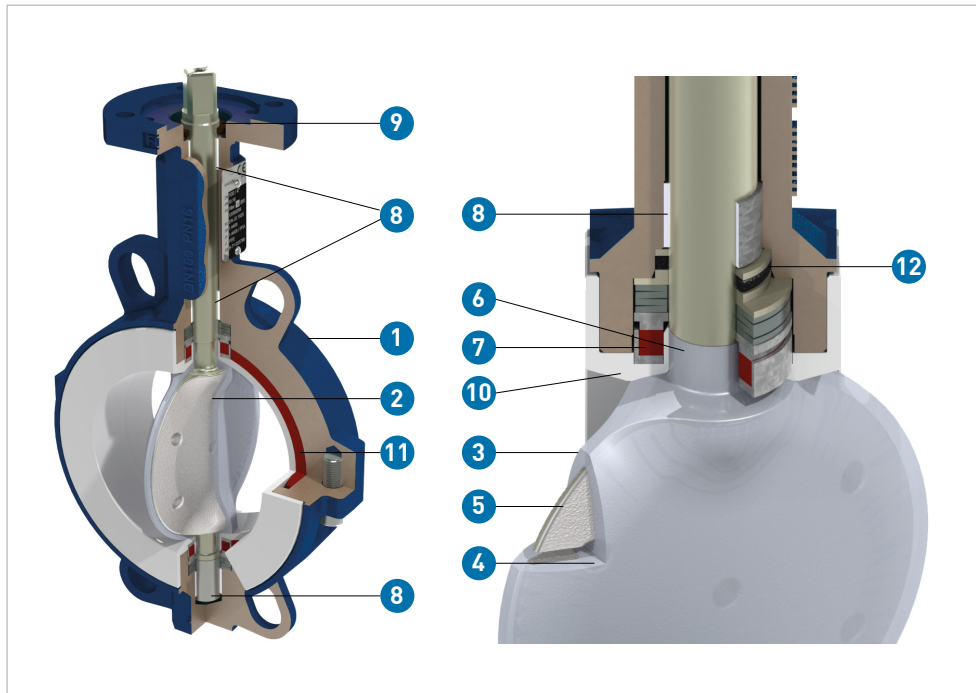
#### Flow media

- Ultrapure DI Water
- Hot Ultrapure DI Water

#### Applications

- Water
- Water Treatment Plants
- Power Generation
- Chemical Processing
- Oil & Gas
- Marine
- Life Science
- Mining/Slurry
- Bulk Handling
- Air Separation
- Steel Industry

## Technical data



- 1 Two-piece body in ductile iron EN-JS 1025
- 2 One-piece, blow out proof disc/shaft
- 3 Disc encapsulated with a min. thickness of 3 mm
- 4 Disc encapsulation is mechanically locked with the core
- 5 Optimized disc profile to allow high kV flow rate
- 6 Encapsulated shaft sealing surface
- 7 Life loaded safety shaft sealing
- 8 Self-lubricating shaft bushings
- 9 Shaft sealed from environment
- 10 Chambered liner, to prevent radial cold-flow
- 11 Elastomeric backing
- 12 TA-Luft VDI 2440 / EN ISO 15848 packing optional

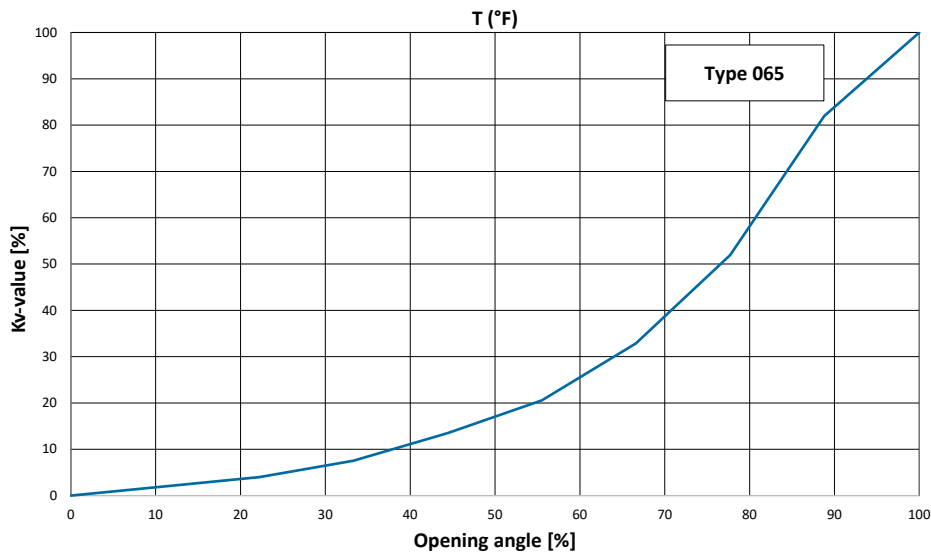
| Specification             |   |  |  |
|---------------------------|---|--|--|
| <b>Dimensions</b>         |   | d63/DN50 – d355/DN350, 2" – 14"                                    |  |
| <b>Materials</b>          | Body  | Ductile iron EN-JS 1025 / ≈ ASTM A395 60-40-18, Epoxy coated 80 µm |  |
|                           | Disc/shaft  | dimensions   | Stainless steel PFA overmoulded 2"-12"                       |
|                           |   | dimension  | Disc carbon steel PFA overmoulded, shaft stainless steel 14" |
|                           | Collar  | PTFE   |  |
|                           | Backing   | FKM  |  |
| <b>Pressure ratings</b>   | PN16  | DN50-150, 2" – 6"  |  |
|                           | PN10  | DN200-300, 8" – 12"  |  |
|                           | PN6   | DN350, 14"   |  |
| <b>Temperature range</b>  |   | -20°C to 200°C, -4°F to 392°F                                      |  |
| <b>Connections</b>        | Flanges   | ANSI cl. 150, PN10, PN16   |  |
|                           | Mounting Flanges  | EN ISO 5211  |  |
| <b>Actuation variants</b> | Manually operated (hand lever or manual reduction gear)   |  |  |
| <b>Special options</b>    | High purity: The valve is cleaned, assembled, tested and packaged under cleanroom conditions. US federal standard 209b, class 10000, ISO Class 7 (ISO 14644-1)        |  |  |
| <b>Product standard</b>   | EN 593  |  |  |
| <b>Test standard</b>      | ISO 5208 (leakage rate A)   |  |  |
| <b>Approvals</b>          | FDA and EC 1935/2004, IEC 61508 / 61511, Safety Integrity Level SIL 3, Pressure Equipment Directive 2014/68/EU (PED) appendix 1 for fluids of the groups 1 and 2, EAC |  |  |

## Kv 100 values (Flow characteristics)

| DN (mm) | Inch (inch) | d (mm) | d (mm) | Kv 100 (l/min) | Cv 100 (US gal./min) | Kv 100 (m <sup>3</sup> /h) |
|---------|-------------|--------|--------|----------------|----------------------|----------------------------|
| 50      | 2           | 63     | 63     | 134            | 155                  | 8.04                       |
| 65      | 2 ½         | 75     | 75     | 227            | 263                  | 13.62                      |
| 80      | 3           | 90     | 90     | 392            | 455                  | 23.52                      |
| 100     | 4           | 110    | 110    | 585            | 679                  | 35.1                       |
| 125     | 5           | 140    | 140    | 1'015          | 1'177                | 60.9                       |
| 150     | 6           | 160    | 160    | 1'495          | 1'734                | 89.7                       |
| 200     | 8           | 225    | 225    | 3'050          | 3'538                | 183                        |
| 250     | 10          | 280    | 280    | 4'510          | 5'232                | 270.6                      |
| 300     | 12          | 315    | 315    | 7'210          | 8'364                | 432.6                      |
| 350     | 14          | 335    | 335    | 8'760          | 10'162               | 525.6                      |

## Flow characteristics

| DN (mm) | Inch (inch) | d (mm) | 20 (°) | 30 (°) | 40 (°) | 50 (°) | 60 (°) | 70 (°) | 80 (°) | 90 (°) |
|---------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 50      | 2           | 63     | 5      | 11     | 24     | 42     | 64     | 92     | 118    | 134    |
| 65      | 2 ½         | 75     | 8      | 19     | 41     | 70     | 108    | 155    | 200    | 227    |
| 80      | 3           | 90     | 15     | 33     | 72     | 125    | 190    | 270    | 335    | 392    |
| 100     | 4           | 110    | 20     | 48     | 95     | 162    | 255    | 385    | 485    | 585    |
| 125     | 5           | 140    | 38     | 82     | 165    | 255    | 455    | 645    | 815    | 1'015  |
| 150     | 6           | 160    | 60     | 130    | 235    | 395    | 645    | 955    | 1'220  | 1'495  |
| 200     | 8           | 225    | 95     | 230    | 465    | 795    | 1'180  | 1'815  | 2'410  | 3'050  |
| 250     | 10          | 280    | 175    | 350    | 710    | 1'160  | 1'610  | 2'420  | 3'650  | 4'510  |
| 300     | 12          | 315    | 265    | 522    | 995    | 1'720  | 2'665  | 3'965  | 5'960  | 7'210  |
| 350     | 14          | 335    | 350    | 660    | 1'180  | 1'800  | 2'880  | 4'550  | 7'180  | 8'760  |

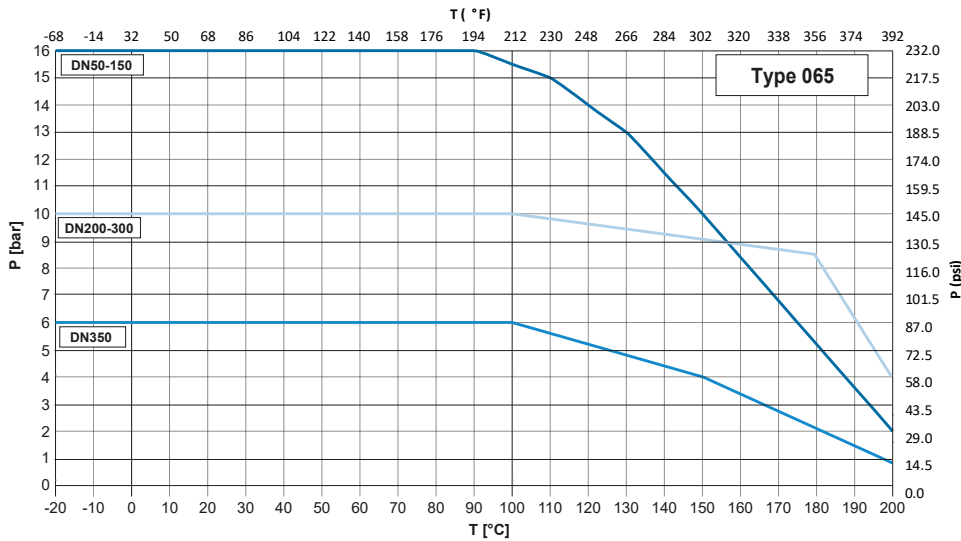


## Pressure-temperature diagram

The following pressure-temperature diagrams are based on a lifetime of 25 years and water or similar media.

### DN50 – DN350

T Temperature (°C, °F)  
P Permissible pressure (bar, psi)



## Operating torque

| DN (mm) | Inch (") | d (mm) | M (Nm) |
|---------|----------|--------|--------|
| 50      | 2        | 63     | 25     |
| 65      | 2 ½      | 75     | 39     |
| 80      | 3        | 90     | 43     |
| 100     | 4        | 110    | 73     |
| 125     | 5        | 140    | 87     |
| 150     | 6        | 160    | 146    |
| 200     | 8        | 225    | 189    |
| 250     | 10       | 280    | 330    |
| 300     | 12       | 315    | 476    |
| 350     | 14       | 335    | 675    |

Depending on the operation conditions (e.g. control time, medium, temperature, etc.) the stated operating torque can increase up to 4 times.

## Reference values for tightening torque of screws

Reference values for tightening torque of screws type 065 in ISO flange connections

| DN (mm) | Inch (") | d (mm) | PN10 |            | PN16 |            |
|---------|----------|--------|------|------------|------|------------|
|         |          |        | (Nm) | (Inch-lbs) | (Nm) | (Inch-lbs) |
| 50      | 2        | 63     | 52   | 460        | 52   | 460        |
| 65      | 2 ½      | 75     | 52   | 460        | 52   | 460        |
| 80      | 3        | 90     | 32   | 285        | 32   | 285        |
| 100     | 4        | 110    | 45   | 396        | 45   | 396        |
| 125     | 5        | 140    | 55   | 483        | 55   | 483        |
| 150     | 6        | 160    | 90   | 794        | 90   | 794        |
| 200     | 8        | 225    | 112  | 993        | 75   | 662        |
| 250     | 10       | 280    | 116  | 1'028      | 139  | 1'234      |
| 300     | 12       | 315    | 137  | 1'209      | 164  | 1'451      |
| 350     | 14       | 335    | 142  | 1'255      | 170  | 1'506      |

## Technical basics

### Tips for installation

Use lug style valve as either a wafer style or a lug style valve.

### Installation as a lugged valve

If a valve is installed as a lugged valve and pressure is applied to it, it must be closed with a blind flange (or blind cover and counterflange), in order to prevent personal injury or property damage in the event of leaks and/or impermissible opening.

### Requirements for installation

Ensure that the following conditions are satisfied prior to installation:

- Make sure that the butterfly valves to be installed correspond specifically to the pressure rating, type of connection, dimension and materials of the particular application.
- Perform a function test. To do this, close and re-open the butterfly valve.
- Only install butterfly valves that function without problems.

### Gaskets

There is no need to use gaskets between the flanges and the valve. However, where the valve has to be mounted between flanges which are uneven or slightly distorted, PTFE-envelope gaskets should be fitted.

### Maintenance notes

In normal operation, butterfly valves do not require maintenance. It is nonetheless recommended to perform maintenance on butterfly valves after 5,000 actuation cycles at most. The following steps must be taken when doing so:

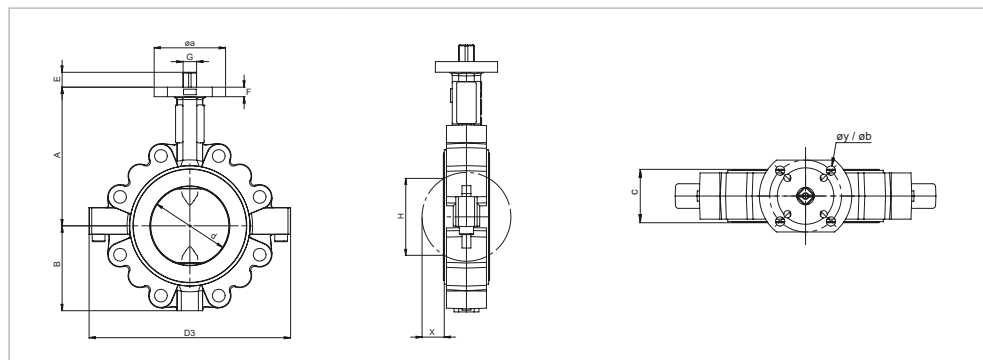
- Regularly check that no medium escapes to the outside. If medium exits from the flange connections, tighten them.
- We recommend operating the butterfly valves that are kept permanently in the same position 1 or 2 x a year to check their functionality.



Installation and maintenance must be performed in accordance with the corresponding installation manual. The installation manual is provided with the product, see also the online product catalog at [www.gfps.com](http://www.gfps.com)

## Dimensions

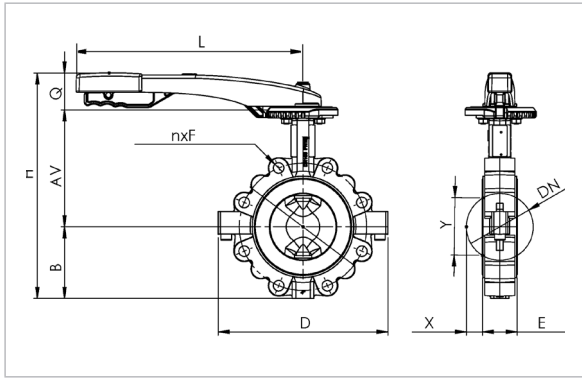
### Butterfly Valve type 065 with open shaft end DN50 – DN350



| DN (mm) | Inch (inch) | d <sub>1</sub> (mm) | d (mm) | A (mm) | B (mm) | C (mm) | H (mm) | X (mm) | D3 (mm) |
|---------|-------------|---------------------|--------|--------|--------|--------|--------|--------|---------|
| 50      | 2           | 63                  | 50     | 134    | 68     | 43     | 26     | 9      | 162     |
| 65      | 2 ½         | 75                  | 65     | 145    | 78     | 46     | 39     | 7      | 170     |
| 80      | 3           | 90                  | 80     | 160    | 92     | 46     | 66     | 17     | 216     |
| 100     | 4           | 110                 | 100    | 175    | 107    | 52     | 86     | 24     | 254     |
| 125     | 5           | 140                 | 125    | 194    | 120    | 56     | 112    | 35     | 293     |
| 150     | 6           | 160                 | 150    | 210    | 134    | 56     | 140    | 47     | 315     |
| 200     | 8           | 225                 | 200    | 239    | 162    | 60     | 191    | 70     | 389     |
| 250     | 10          | 280                 | 250    | 275    | 199    | 68     | 241    | 91     | 483     |
| 300     | 12          | 315                 | 300    | 310    | 230    | 78     | 290    | 111    | 543     |
| 350     | 14          | 335                 | 339    | 349    | 254    | 78     | 330    | 131    | 564     |

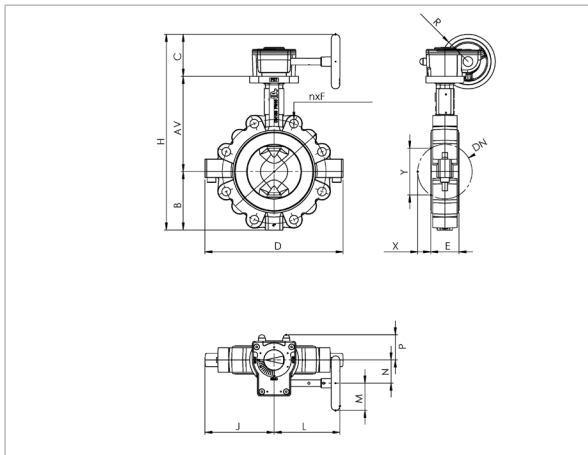
| DN (mm) | Inch (inch) | d <sub>1</sub> (mm) | ISO     | a (mm) | y (mm) | b (mm) | G (mm) | E (mm) | Weight (kg) |
|---------|-------------|---------------------|---------|--------|--------|--------|--------|--------|-------------|
| 50      | 2           | 63                  | F05     | 65     | 4x7    | 50     | ∅ 11   | 12     | 3.2         |
| 65      | 2 ½         | 75                  | F05     | 65     | 4x7    | 50     | ∅ 11   | 12     | 4.1         |
| 80      | 3           | 90                  | F05     | 65     | 4x7    | 50     | ∅ 11   | 12     | 6.2         |
| 100     | 4           | 110                 | F05/07  | 90     | 4x7/9  | 50/70  | ∅ 14   | 16     | 9.3         |
| 125     | 5           | 140                 | F05/07  | 90     | 4x7/9  | 50/70  | ∅ 14   | 16     | 10.7        |
| 150     | 6           | 160                 | F07     | 90     | 4x9    | 70     | ∅ 17   | 19     | 12.9        |
| 200     | 8           | 225                 | F07/F10 | 125    | 4x9/11 | 70/102 | ∅ 17   | 19     | 22.3        |
| 250     | 10          | 280                 | F10     | 125    | 4x11   | 102    | ∅ 22   | 24     | 32.4        |
| 300     | 12          | 315                 | F10     | 125    | 4x11   | 102    | ∅ 22   | 24     | 46.9        |
| 350     | 14          | 335                 | F12     | 155    | 4x13.5 | 125    | ∅ 27   | 40     | 87          |

## Butterfly Valve type 065 with hand lever DN50 – DN150



| DN (mm) | Inch (inch) | d <sub>1</sub> (mm) | H (mm) | B (mm) | AV (mm) | Q (mm) | D (mm) | Y (mm) | X (mm) | E (mm) | L (mm) | Weight (kg) |
|---------|-------------|---------------------|--------|--------|---------|--------|--------|--------|--------|--------|--------|-------------|
| 50      | 2           | 63                  | 245    | 68     | 138     | 56     | 162    | 26     | 9      | 43     | 210    | 3.6         |
| 80      | 3           | 90                  | 295    | 92     | 164     | 56     | 216    | 66     | 17     | 46     | 210    | 6.6         |
| 100     | 4           | 110                 | 325    | 107    | 179     | 66     | 254    | 86     | 24     | 52     | 340    | 9.8         |
| 150     | 6           | 160                 | 395    | 134    | 214     | 66     | 315    | 140    | 47     | 56     | 340    | 13.4        |

## Butterfly Valve type 065 with reduction gear DN50 – DN350



| DN (mm) | Inch (inch) | d <sub>1</sub> (mm) | H (mm) | B (mm) | AV (mm) | C (mm) | D (mm) | Y (mm) | X (mm) | E (mm) | L (mm) | P (mm) | N (mm) | W (mm) | Weight (kg) |
|---------|-------------|---------------------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------|
| 50      | 2           | 63                  | 279    | 68     | 134     | 77     | 162    | 26     | 9      | 43     | 126    | 48     | 43     | 50     | 4           |
| 80      | 3           | 90                  | 329    | 92     | 160     | 77     | 216    | 66     | 17     | 46     | 126    | 48     | 43     | 50     | 7           |
| 100     | 4           | 110                 | 359    | 107    | 175     | 77     | 254    | 86     | 24     | 52     | 126    | 48     | 43     | 50     | 10.1        |
| 150     | 6           | 160                 | 454    | 134    | 210     | 110    | 315    | 140    | 47     | 56     | 189    | 48     | 43     | 80     | 13.8        |
| 200     | 8           | 225                 | 511    | 162    | 239     | 110    | 389    | 191    | 70     | 60     | 189    | 48     | 43     | 80     | 23.2        |
| 250     | 10          | 280                 | 633    | 199    | 275     | 159    | 483    | 241    | 91     | 68     | 219    | 56     | 50     | 125    | 33.95       |
| 300     | 12          | 315                 | 699    | 230    | 310     | 159    | 543    | 290    | 111    | 78     | 219    | 56     | 50     | 125    | 48.45       |
| 350     | 14          | 335                 | 796    | 254    | 349     | 193    | 564    | 330    | 131    | 78     | 371    | 83     | 80     | 150    | 92.4        |

Mobile apps and online tools to support configuration and calculation at [www.gfps.com/tools](http://www.gfps.com/tools)



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Tel. +41 52 631 11 11 • [www.gfps.com](http://www.gfps.com) • E-Mail: [info.ps@georgfischer.com](mailto:info.ps@georgfischer.com)