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# NEUMO BioControl®

Modular concept with almost unlimited adaptation opportunities

## Advantages NEUMO BioControl®

### Constructive Benefits

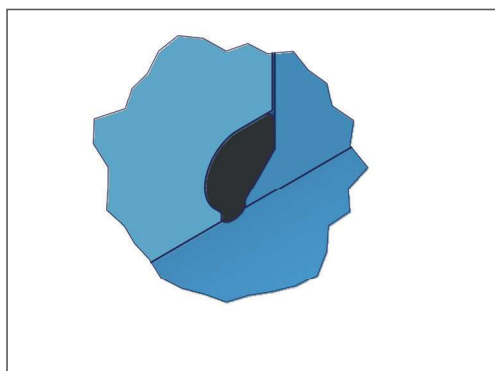
- one technology, 2 housing types (inline- and angle housing)
- block flanges for vessel installation
- high flexibility due to standardised modular concept
- more than 40 producers of measuring and analysis instruments offer their devices with NEUMO BioControl® connections
- innovative, elastomer-free solution available (BioControl® CS)
- cGMP compliant design
- no dome, virtually no dead space

### Technical Benefits

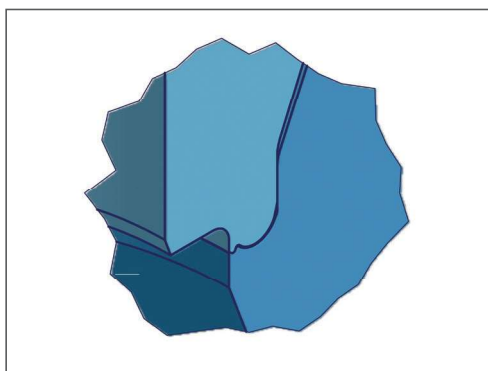
- standardised connections allows maximum flexibility, for sight glass installation as well as adaptation of instruments
- minimum exposure of the medium to the elastomer
- no dome like for example with tee-pieces for instruments or Ingold connections
  - optimal cleanliness (CIP / SIP)
  - controlled elastomer pressing
  - no elastomer return

### Economic Benefits

- reduces maintenance costs and downtimes
- can reduce several conventional interfaces
- high potential in view of total cost of ownership
- minimises the risks of process disturbances



BioControl®



BioControl® CS

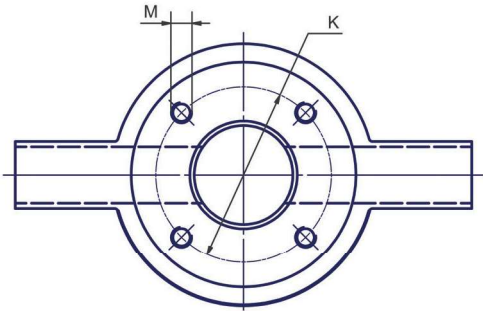
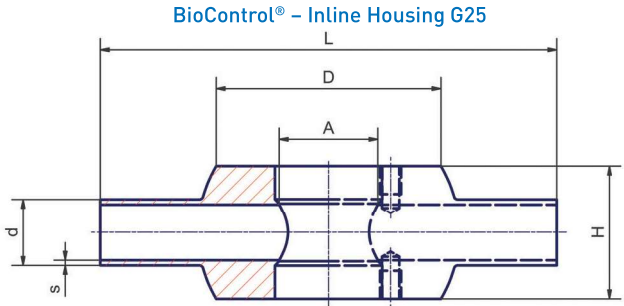


BioControl® – Inline Housing G25

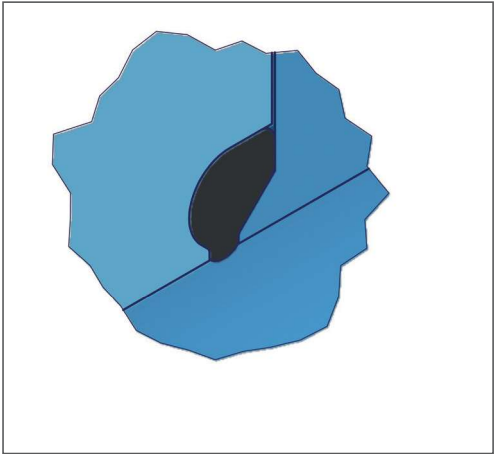
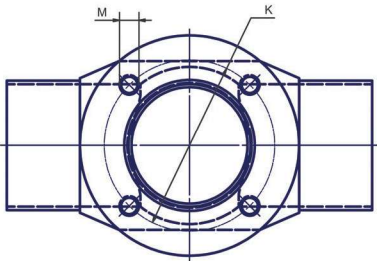
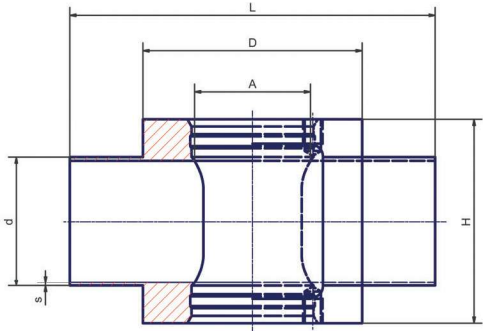


BioControl® – Inline Housing G50 – G65

| Technical Data                                                                                                                                                                                          |                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Material*                                                                                                                                                                                               | 1.4435 / 316L                                                                                  |
| Surface finish<br>(product contacted area)*                                                                                                                                                             | Ra < 0,8 µm electropolished                                                                    |
| Max. permissible pressure                                                                                                                                                                               | PN16                                                                                           |
| Max. operating temperature                                                                                                                                                                              | -10°C / +200°C                                                                                 |
| Delta ferrite content (raw material)*                                                                                                                                                                   | < 1%                                                                                           |
| Process connection                                                                                                                                                                                      | G25, G50 and G65                                                                               |
| Connections*                                                                                                                                                                                            | Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE) |
| Approvals                                                                                                                                                                                               | TÜV-component testing                                                                          |
| * Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.) as well as different connections, surface qualities and delta ferrite values are available on request. |                                                                                                |



BioControl® – Inline Housing G50 – G65



Elastomer-free solution also available  
(BioControl® CS) - please contact us!



## BioControl® Inline Housing G25 / G50 / G65, tube dimensions in accordance with DIN11866 line A

| Process Connection | DN  | d   | s   | A    | D   | L   | H   | K  | M   |
|--------------------|-----|-----|-----|------|-----|-----|-----|----|-----|
| G25                | 4   | 6   | 1   | 28,1 | 64  | 130 | 26  | 50 | M6  |
| G25                | 6   | 8   | 1   | 28,1 | 64  | 130 | 28  | 50 | M6  |
| G25                | 8   | 10  | 1   | 28,1 | 64  | 130 | 30  | 50 | M6  |
| G25                | 10  | 13  | 1,5 | 28,1 | 64  | 130 | 32  | 50 | M6  |
| G25                | 15  | 19  | 1,5 | 28,1 | 64  | 130 | 38  | 50 | M6  |
| G25                | 20  | 23  | 1,5 | 28,1 | 64  | 130 | 42  | 50 | M6  |
| G50                | 25  | 29  | 1,5 | 47,6 | 90  | 150 | 60  | 70 | M8  |
| G50                | 32  | 35  | 1,5 | 47,6 | 90  | 150 | 66  | 70 | M8  |
| G50                | 40  | 41  | 1,5 | 47,6 | 90  | 150 | 72  | 70 | M8  |
| G50                | 50  | 53  | 1,5 | 47,6 | 90  | 150 | 84  | 70 | M8  |
| G50                | 65  | 70  | 2   | 47,6 | 90  | 170 | 100 | 70 | M8  |
| G50                | 80  | 85  | 2   | 47,6 | 90  | 170 | 115 | 70 | M8  |
| G50                | 100 | 104 | 2   | 47,6 | 90  | 170 | 134 | 70 | M8  |
| G65                | 40  | 41  | 1,5 | 65,6 | 120 | 180 | 72  | 95 | M10 |
| G65                | 50  | 53  | 1,5 | 65,6 | 120 | 180 | 84  | 95 | M10 |
| G65                | 65  | 70  | 2   | 65,6 | 120 | 200 | 100 | 95 | M10 |
| G65                | 80  | 85  | 2   | 65,6 | 120 | 200 | 115 | 95 | M10 |
| G65                | 100 | 104 | 2   | 65,6 | 120 | 200 | 134 | 95 | M10 |

## BioControl® Inline Housing G25 / G50 / G65, tube dimensions in accordance with DIN11866 line B

| Process Connection | DN  | d     | s   | A    | D   | L   | H     | K  | M   |
|--------------------|-----|-------|-----|------|-----|-----|-------|----|-----|
| G25                | 6   | 10,2  | 1,6 | 28,1 | 64  | 130 | 26    | 50 | M6  |
| G25                | 8   | 13,5  | 1,6 | 28,1 | 64  | 130 | 32,3  | 50 | M6  |
| G25                | 10  | 17,2  | 1,6 | 28,1 | 64  | 130 | 36    | 50 | M6  |
| G25                | 15  | 21,3  | 1,6 | 28,1 | 64  | 130 | 40,1  | 50 | M6  |
| G25                | 20  | 26,9  | 1,6 | 28,1 | 64  | 130 | 45,7  | 50 | M6  |
| G50                | 25  | 33,7  | 2   | 47,6 | 90  | 150 | 63,7  | 70 | M8  |
| G50                | 32  | 42,4  | 2   | 47,6 | 90  | 150 | 72,4  | 70 | M8  |
| G50                | 40  | 48,3  | 2   | 47,6 | 90  | 150 | 78,3  | 70 | M8  |
| G50                | 50  | 60,3  | 2   | 47,6 | 90  | 150 | 90,3  | 70 | M8  |
| G50                | 65  | 76,1  | 2   | 47,6 | 90  | 170 | 106,1 | 70 | M8  |
| G50                | 80  | 88,9  | 2,3 | 47,6 | 90  | 170 | 118,3 | 70 | M8  |
| G50                | 100 | 114,3 | 2,3 | 47,6 | 90  | 170 | 143,7 | 70 | M8  |
| G65                | 40  | 48,3  | 2   | 65,6 | 120 | 180 | 78,3  | 95 | M10 |
| G65                | 50  | 60,3  | 2   | 65,6 | 120 | 180 | 90,3  | 95 | M10 |
| G65                | 65  | 76,1  | 2   | 65,6 | 120 | 200 | 106,1 | 95 | M10 |
| G65                | 80  | 88,9  | 2,3 | 65,6 | 120 | 200 | 118,3 | 95 | M10 |
| G65                | 100 | 114,3 | 2,3 | 65,6 | 120 | 200 | 143,7 | 95 | M10 |

## BioControl® Inline Housing G25 / G50 / G65, tube dimensions in accordance with DIN11866 line C

| Process Connection | DN     | d     | s    | A    | D   | L   | H      | K  | M   |
|--------------------|--------|-------|------|------|-----|-----|--------|----|-----|
| G25                | 1/4"   | 6,35  | 0,89 | 28,1 | 64  | 130 | 26,75  | 50 | M6  |
| G25                | 3/8"   | 9,53  | 0,89 | 28,1 | 64  | 130 | 29,75  | 50 | M6  |
| G25                | 1/2"   | 12,7  | 1,65 | 28,1 | 64  | 130 | 31,4   | 50 | M6  |
| G25                | 3/4"   | 19,05 | 1,65 | 28,1 | 64  | 130 | 37,75  | 50 | M6  |
| G25                | 1"     | 25,4  | 1,65 | 28,1 | 64  | 130 | 44,1   | 50 | M6  |
| G50                | 1"     | 25,4  | 1,65 | 47,6 | 90  | 150 | 56,1   | 70 | M8  |
| G50                | 1 1/2" | 38,1  | 1,65 | 47,6 | 90  | 150 | 68,8   | 70 | M8  |
| G50                | 2"     | 50,8  | 1,65 | 47,6 | 90  | 150 | 81,5   | 70 | M8  |
| G50                | 2 1/2" | 63,5  | 1,65 | 47,6 | 90  | 170 | 94,2   | 70 | M8  |
| G50                | 3"     | 76,2  | 1,65 | 47,6 | 90  | 170 | 106,9  | 70 | M8  |
| G50                | 4"     | 101,6 | 2,11 | 47,6 | 90  | 170 | 131,38 | 70 | M8  |
| G65                | 1 1/2" | 38,1  | 1,65 | 65,6 | 120 | 180 | 68,8   | 95 | M10 |
| G65                | 2"     | 50,8  | 1,65 | 65,6 | 120 | 180 | 81,5   | 95 | M10 |
| G65                | 2 1/2" | 63,5  | 1,65 | 65,6 | 120 | 200 | 94,2   | 95 | M10 |
| G65                | 3"     | 76,2  | 1,65 | 65,6 | 120 | 200 | 106,9  | 95 | M10 |
| G65                | 4"     | 101,6 | 2,11 | 65,6 | 120 | 200 | 131,38 | 95 | M10 |



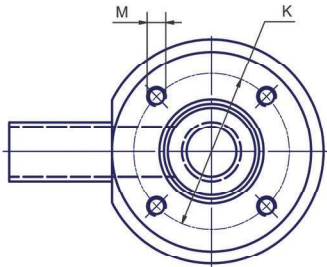
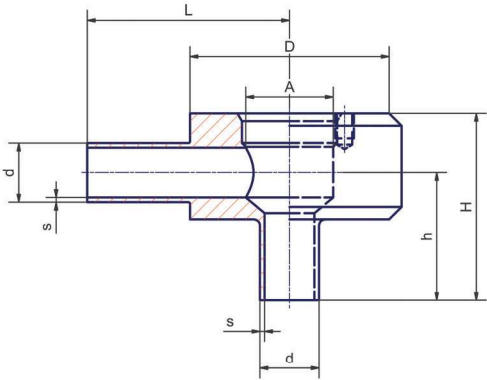
BioControl® – Angle Housing U25



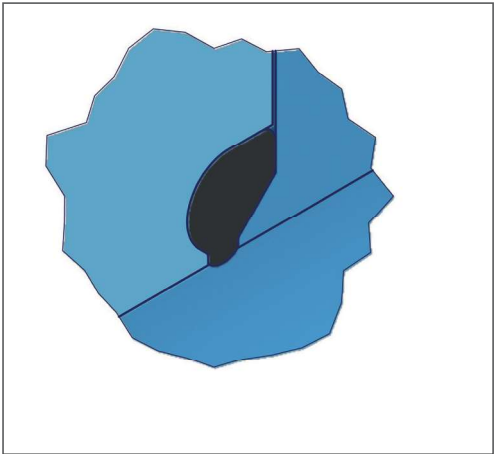
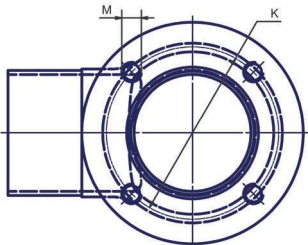
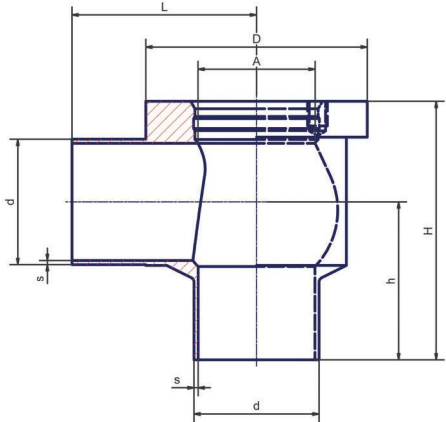
BioControl® – Angle Housing U50 – U65

| Technical Data                                                                                                                                                                                          |                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Material*                                                                                                                                                                                               | 1.4435 / 316L                                                                                  |
| Surface finish<br>(product contacted area)*                                                                                                                                                             | Ra < 0,8 µm electropolished                                                                    |
| Max. permissible pressure                                                                                                                                                                               | PN16                                                                                           |
| Max. operating temperature                                                                                                                                                                              | -10°C / +200°C                                                                                 |
| Delta ferrite content (raw material)*                                                                                                                                                                   | < 1%                                                                                           |
| Process connection                                                                                                                                                                                      | U25, U50 and U65                                                                               |
| Connections*                                                                                                                                                                                            | Orbital welding ends in accordance with DIN11866 line A (DIN), line B (ISO), line C (ASME-BPE) |
| Approvals                                                                                                                                                                                               | TÜV-component testing                                                                          |
| * Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.) as well as different connections, surface qualities and delta ferrite values are available on request. |                                                                                                |

BioControl® – Angle Housing U25



BioControl® – Angle Housing U50 – U65



Elastomer-free solution also available (BioControl® CS) - please contact us!



## BioControl® – Angle Housing U25 / U50 / U65, tube dimensions in accordance with DIN11866 line A

| Process Connection | DN  | d   | s   | A    | D   | L   | H   | h    | K  | M   |
|--------------------|-----|-----|-----|------|-----|-----|-----|------|----|-----|
| U25                | 4   | 6   | 1   | 28,1 | 64  | 65  | 46  | 33   | 50 | M6  |
| U25                | 6   | 8   | 1   | 28,1 | 64  | 65  | 48  | 34   | 50 | M6  |
| U25                | 8   | 10  | 1   | 28,1 | 64  | 65  | 50  | 35   | 50 | M6  |
| U25                | 10  | 13  | 1,5 | 28,1 | 64  | 65  | 51  | 35   | 50 | M6  |
| U25                | 15  | 19  | 1,5 | 28,1 | 64  | 65  | 60  | 41   | 50 | M6  |
| U25                | 20  | 23  | 1,5 | 28,1 | 64  | 65  | 65  | 44   | 50 | M6  |
| U50                | 25  | 29  | 1,5 | 47,6 | 90  | 75  | 90  | 60   | 70 | M8  |
| U50                | 32  | 35  | 1,5 | 47,6 | 90  | 75  | 95  | 62   | 70 | M8  |
| U50                | 40  | 41  | 1,5 | 47,6 | 90  | 75  | 95  | 59   | 70 | M8  |
| U50                | 50  | 53  | 1,5 | 47,6 | 90  | 75  | 105 | 63   | 70 | M8  |
| U50                | 65  | 70  | 2   | 47,6 | 90  | 85  | 130 | 80   | 70 | M8  |
| U50                | 80  | 85  | 2   | 47,6 | 90  | 90  | 145 | 87,5 | 70 | M8  |
| U50                | 100 | 104 | 2   | 47,6 | 90  | 100 | 165 | 98   | 70 | M8  |
| U65                | 40  | 41  | 1,5 | 65,6 | 120 | 90  | 105 | 69   | 95 | M10 |
| U65                | 50  | 53  | 1,5 | 65,6 | 120 | 90  | 112 | 70   | 95 | M10 |
| U65                | 65  | 70  | 2   | 65,6 | 120 | 100 | 130 | 80   | 95 | M10 |
| U65                | 80  | 85  | 2   | 65,6 | 120 | 100 | 145 | 87,5 | 95 | M10 |
| U65                | 100 | 104 | 2   | 65,6 | 120 | 100 | 165 | 98   | 95 | M10 |

## BioControl® – Angle Housing U25 / U50 / U65, tube dimensions in accordance with DIN11866 line B

| Process Connection | DN  | d     | s   | A    | D   | L   | H   | h      | K  | M   |
|--------------------|-----|-------|-----|------|-----|-----|-----|--------|----|-----|
| U25                | 6   | 10,2  | 1,6 | 28,1 | 64  | 65  | 48  | 33,5   | 50 | M6  |
| U25                | 8   | 13,5  | 1,6 | 28,1 | 64  | 65  | 53  | 36,85  | 50 | M6  |
| U25                | 10  | 17,2  | 1,6 | 28,1 | 64  | 65  | 57  | 39     | 50 | M6  |
| U25                | 15  | 21,3  | 1,6 | 28,1 | 64  | 65  | 61  | 40,95  | 50 | M6  |
| U25                | 20  | 26,9  | 1,6 | 28,1 | 64  | 65  | 66  | 43,15  | 50 | M6  |
| U50                | 25  | 33,7  | 2   | 47,6 | 90  | 75  | 95  | 63,15  | 70 | M8  |
| U50                | 32  | 42,4  | 2   | 47,6 | 90  | 75  | 95  | 58,8   | 70 | M8  |
| U50                | 40  | 48,3  | 2   | 47,6 | 90  | 75  | 100 | 60,85  | 70 | M8  |
| U50                | 50  | 60,3  | 2   | 47,6 | 90  | 75  | 110 | 64,85  | 70 | M8  |
| U50                | 65  | 76,1  | 2   | 47,6 | 90  | 85  | 135 | 81,95  | 70 | M8  |
| U50                | 80  | 88,9  | 2,3 | 47,6 | 90  | 90  | 150 | 90,85  | 70 | M8  |
| U50                | 100 | 114,3 | 2,3 | 47,6 | 90  | 100 | 175 | 103,15 | 70 | M8  |
| U65                | 40  | 48,3  | 2   | 65,6 | 120 | 90  | 107 | 67,85  | 95 | M10 |
| U65                | 50  | 60,3  | 2   | 65,6 | 120 | 90  | 115 | 69,85  | 95 | M10 |
| U65                | 65  | 76,1  | 2   | 65,6 | 120 | 100 | 135 | 81,95  | 95 | M10 |
| U65                | 80  | 88,9  | 2,3 | 65,6 | 120 | 100 | 155 | 95,85  | 95 | M10 |
| U65                | 100 | 114,3 | 2,3 | 65,6 | 120 | 100 | 175 | 103,15 | 95 | M10 |

## BioControl® – Angle Housing U25 / U50 / U65, tube dimensions in accordance with DIN11866 line C

| Process Connection | DN     | d     | s    | A    | D   | L   | H   | h     | K  | M   |
|--------------------|--------|-------|------|------|-----|-----|-----|-------|----|-----|
| U25                | 1/4"   | 6,35  | 0,89 | 28,1 | 64  | 65  | 46  | 32,72 | 50 | M6  |
| U25                | 3/8"   | 9,53  | 0,89 | 28,1 | 64  | 65  | 49  | 34,13 | 50 | M6  |
| U25                | 1/2"   | 12,7  | 1,65 | 28,1 | 64  | 65  | 52  | 36,3  | 50 | M6  |
| U25                | 3/4"   | 19,05 | 1,65 | 28,1 | 64  | 65  | 58  | 37,75 | 50 | M6  |
| U25                | 1"     | 25,4  | 1,65 | 28,1 | 64  | 65  | 65  | 42,95 | 50 | M6  |
| U50                | 1"     | 25,4  | 1,65 | 47,6 | 90  | 75  | 80  | 51,95 | 70 | M8  |
| U50                | 1 1/2" | 38,1  | 1,65 | 47,6 | 90  | 75  | 95  | 60,6  | 70 | M8  |
| U50                | 2"     | 50,8  | 1,65 | 47,6 | 90  | 75  | 105 | 64,25 | 70 | M8  |
| U50                | 2 1/2" | 63,5  | 1,65 | 47,6 | 90  | 75  | 115 | 67,9  | 70 | M8  |
| U50                | 3"     | 76,2  | 1,65 | 47,6 | 90  | 85  | 135 | 81,55 | 70 | M8  |
| U50                | 4"     | 101,6 | 2,11 | 47,6 | 90  | 100 | 165 | 99,31 | 70 | M8  |
| U65                | 1 1/2" | 38,1  | 1,65 | 65,6 | 120 | 90  | 100 | 65,96 | 95 | M10 |
| U65                | 2"     | 50,8  | 1,65 | 65,6 | 120 | 90  | 110 | 69,25 | 95 | M10 |
| U65                | 2 1/2" | 63,5  | 1,65 | 65,6 | 120 | 90  | 120 | 72,9  | 95 | M10 |
| U65                | 3"     | 76,2  | 1,65 | 65,6 | 120 | 100 | 140 | 86,55 | 95 | M10 |
| U65                | 4"     | 101,6 | 2,11 | 65,6 | 120 | 100 | 165 | 99,31 | 95 | M10 |



BioControl® – Block Flange  
standard

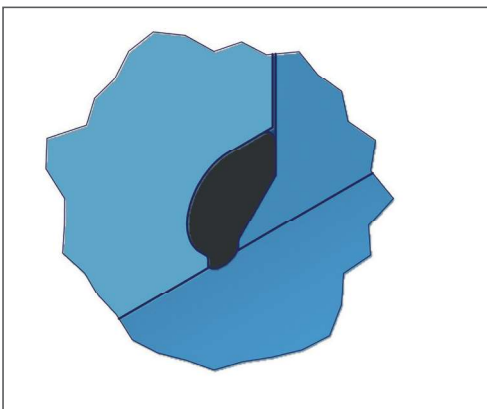


BioControl® – Block Flange  
high version

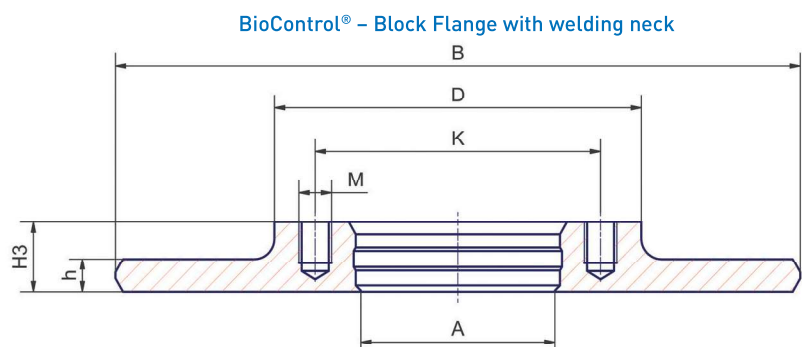
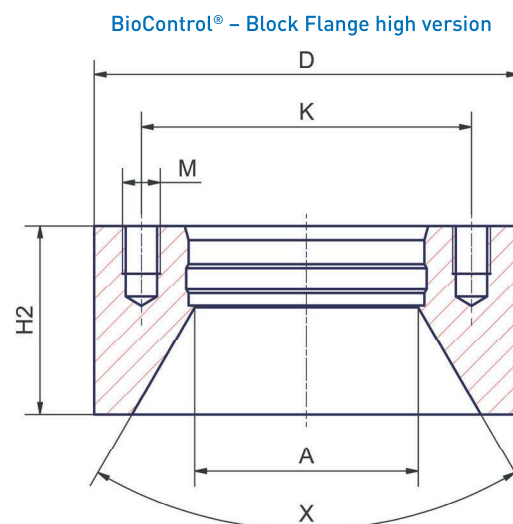
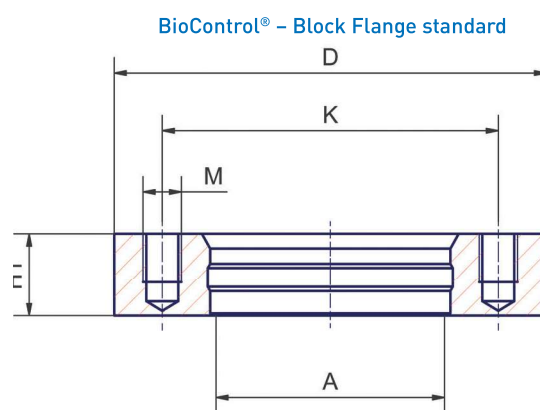


BioControl® – Block Flange  
with welding neck

| Technical Data                                                                                                                                                                                                                                       |                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Material*                                                                                                                                                                                                                                            | 1.4435 / 316L                                            |
| Surface finish<br>(product contacted area)*                                                                                                                                                                                                          | Ra < 0,8 µm electropolished                              |
| Max. permissible pressure                                                                                                                                                                                                                            | PN16                                                     |
| Max. operating temperature                                                                                                                                                                                                                           | -10°C / +200°C                                           |
| Delta ferrite content (raw material)*                                                                                                                                                                                                                | < 1%                                                     |
| Process connection                                                                                                                                                                                                                                   | B25, B50, B65 and B80                                    |
| Sealing*                                                                                                                                                                                                                                             | EPDM (FDA + USP Class VI)                                |
| Block flange standard                                                                                                                                                                                                                                | Vessel wall thickness < 4mm                              |
| Block flange high version*                                                                                                                                                                                                                           | Vessel wall thickness > 4mm                              |
| Block flange with welding neck*                                                                                                                                                                                                                      | Vessel wall thickness up to 12mm                         |
| Approvals                                                                                                                                                                                                                                            | TÜV-component testing                                    |
| Notification                                                                                                                                                                                                                                         | Please refer to our homepage for processing instructions |
| * Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.) as well as different designs (such as customised heights, turned radii, etc.), surface qualities and delta ferrite values are available on request. |                                                          |

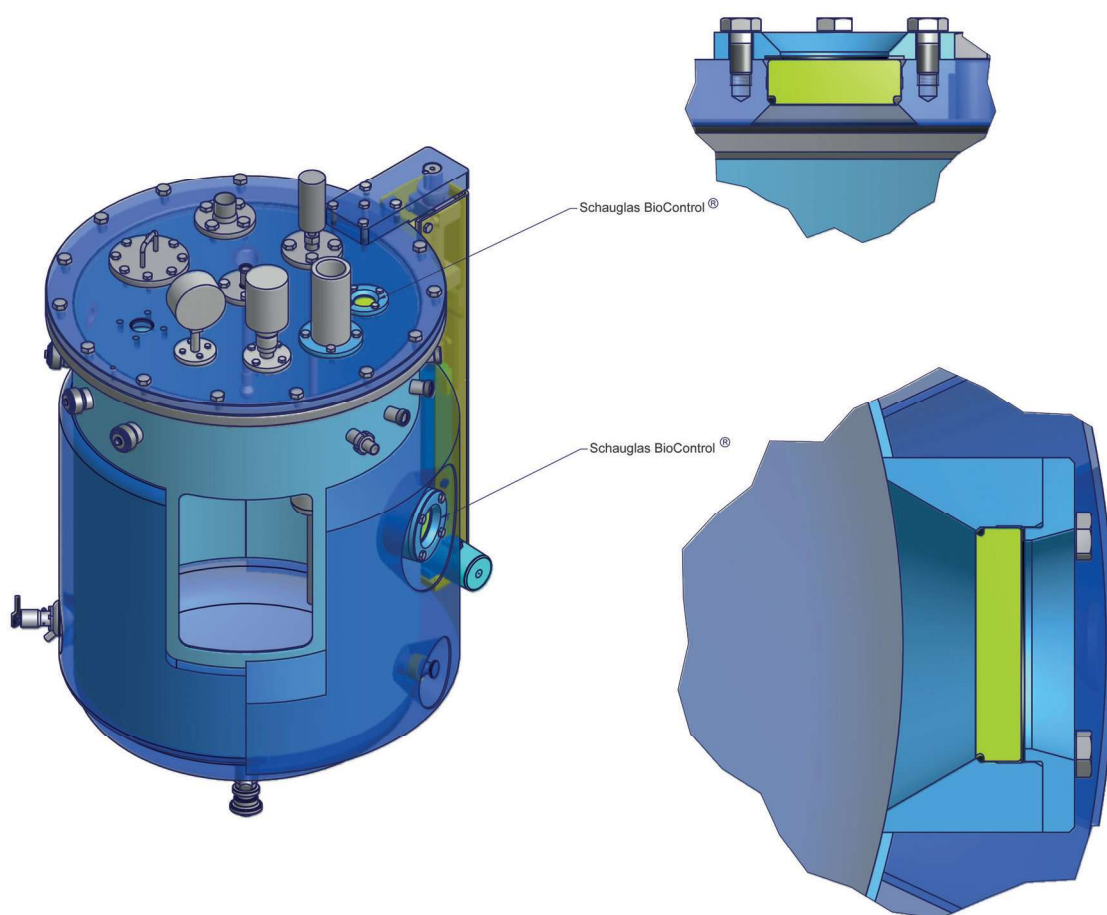


Elastomer-free solution also available  
(BioControl® CS) - please contact us!



| BioControl® – Block Flanges B25 / B50 / B65 / B80 |      |     |    |    |     |    |    |     |        |     |
|---------------------------------------------------|------|-----|----|----|-----|----|----|-----|--------|-----|
| Size                                              | A    | D   | H1 | H2 | B   | H3 | h  | K   | M      | X   |
| B25                                               | 28,1 | 64  | 11 | 25 | 144 | 11 | 8  | 50  | 4x M6  | 90° |
| B50                                               | 47,6 | 90  | 17 | 40 | 170 | 17 | 10 | 70  | 4x M8  | 60° |
| B65                                               | 65,6 | 120 | 17 | 50 | 200 | 17 | 10 | 95  | 4x M10 | 60° |
| B80                                               | 85,1 | 140 | 25 | 65 | 220 | 25 | 10 | 115 | 4x M10 | 60° |

## Application Examples



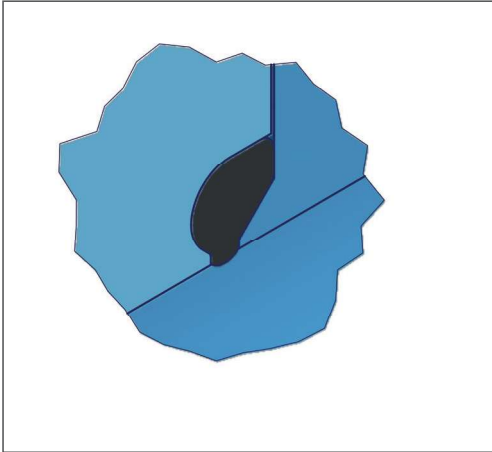


BioControl® – Sight Glass Set



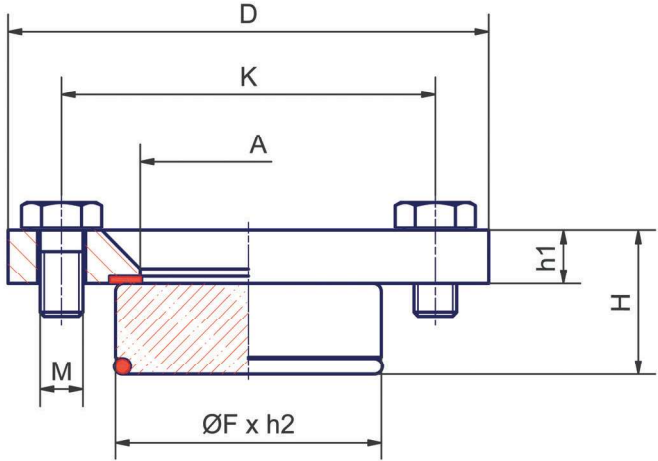
BioControl® – Blind Flange Set

| Technical Data                                                                                                                                                                                                                                                               |                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Materials Blind Flange Set*                                                                                                                                                                                                                                                  | Blind Flange: 1.4435 / 316L<br>O-Ring: EPDM (FDA) |
| Materials Sight Glass Set*                                                                                                                                                                                                                                                   | Flange: 1.4435 / 316L                             |
|                                                                                                                                                                                                                                                                              | Glass: ESG borosilicate                           |
|                                                                                                                                                                                                                                                                              | O-Ring: EPDM (FDA + USP class VI)                 |
|                                                                                                                                                                                                                                                                              | Flat Seal: Klinger Top Chem 2000                  |
| Surface finish (product contacted area)                                                                                                                                                                                                                                      | Ra < 0,8 µm electropolished area                  |
| Max. permissible pressure                                                                                                                                                                                                                                                    | PN16                                              |
| Delta ferrite content (raw material)*                                                                                                                                                                                                                                        | < 1%                                              |
| Process connection                                                                                                                                                                                                                                                           | 25, 50, 65 and 80                                 |
| Approvals                                                                                                                                                                                                                                                                    | TÜV-component testing                             |
| * Alternative material grades (such as 2.4602, 2.4605, 1.4539, 6Mo / UNS N08367, titanium, etc.), alternative seal materials (such as Viton, Viton / FEP-encapsulated, PTFE, etc.) as well as different surface qualities and delta ferrite values are available on request. |                                                   |

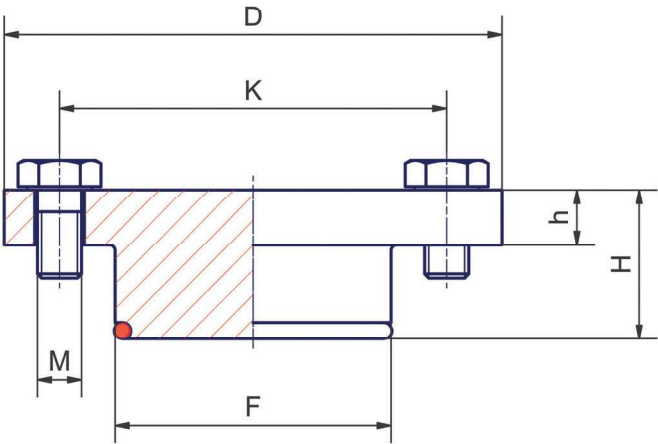


Elastomer-free solution also available (BioControl® CS) - please contact us!

BioControl® – Sight Glass Set



BioControl® – Blind Flange Set



**BioControl® – Sight Glass Set S25 – S80**

| Size | D   | H  | h1 | K   | A    | øF x h2   | M        |
|------|-----|----|----|-----|------|-----------|----------|
| S25  | 64  | 20 | 9  | 50  | 25   | 30,3 x 13 | M6 x 16  |
| S50  | 90  | 27 | 10 | 70  | 40,5 | 49,8 x 17 | M8 x 16  |
| S65  | 120 | 27 | 10 | 95  | 58,5 | 67,8 x 17 | M10 x 18 |
| S80  | 140 | 37 | 12 | 115 | 78   | 87,3 x 17 | M10 x 25 |

**BioControl® – Blind Flange Set DS25 – DS80**

| Size | D   | H  | h  | K   | F    | M        |
|------|-----|----|----|-----|------|----------|
| DS25 | 64  | 20 | 9  | 50  | 30,4 | M6 x 16  |
| DS50 | 90  | 27 | 10 | 70  | 49,9 | M8 x 16  |
| DS65 | 120 | 27 | 10 | 95  | 67,9 | M10 x 18 |
| DS80 | 140 | 37 | 12 | 115 | 87,4 | M10 x 25 |

## BioControl® – a system with almost unlimited possibilities of adaptation

Measuring and analysis instruments as well as sampling valves with BioControl®-connection are available from more than 40 international partners, such as: Gebr. Rieger, Wika, Labom, Endress + Hauser, Negele, Siemens and many more.

