

# Sliding spool control valve with integrated positioner Series SG07



|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Design type             | pneumatic control valve with diaphragm actuator with integrated positioner, Sandwich mounting version, NC                                                                                                                                                                                                                                                                                                                      |
| Overall length          | according to EN558-1R20                                                                                                                                                                                                                                                                                                                                                                                                        |
| Connection              | Flanges DN15...DN150, according to EN1092-1 Form B, PN10-40                                                                                                                                                                                                                                                                                                                                                                    |
| Materials               | Housing Galvanized steel or rather Stainless steel 1.4408, Sealing disc, fixed Stainless steel 1.4571 coated and Movable sealing disc Special carbon<br>Intermediate tube and piston rod Stainless steel 1.4571, Packing PTFE filled with carbon, Driver for sealing disc Stainless steel 1.4581, Diaphragm shells Aluminium coated, Actuator spring stainless steel 1.4310, Housing Positioner Anodized aluminium and Plastic |
| Sliding pair            | Stainless steel/special carbon: Sealing washer fixed Stainless steel 1.4571 coated and Sealing washer movable Special carbon<br>Stainless steel/SFC: Sealing washer fixed Stainless steel 1.4571 coated and Sealing washer movable SFC<br>STN2: Sealing washer fixed and Sealing washer movable STN2                                                                                                                           |
| Leakage rate (% of Kvs) | Stainless steel/special carbon < 0,0001<br>Stainless steel/SFC < 0,0005<br>STN2 < 0,001                                                                                                                                                                                                                                                                                                                                        |
| Mounting type           | Installation in rigid piping system                                                                                                                                                                                                                                                                                                                                                                                            |
| Mounting position       | The positioner is adjusted at the factory for horizontal mounting position. When used in a different mounting position, the zero point and the full-scale value must be readjusted.                                                                                                                                                                                                                                            |
| Application range       | gaseous and liquid media that do not attack the materials used                                                                                                                                                                                                                                                                                                                                                                 |
| Medium temperature      | Housing Galvanized steel: -10...+350°C<br>Housing Stainless steel 1.4408: -60...+350°C (SFC -60...+300°C)                                                                                                                                                                                                                                                                                                                      |
| Ambient temperature     | see positioner                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating pressure      | see tables                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Supply pressure         | max. 6bar                                                                                                                                                                                                                                                                                                                                                                                                                      |



## Type code

|                         |                                                                       |                                 |    |   |     |   |    |      |              |   |    |
|-------------------------|-----------------------------------------------------------------------|---------------------------------|----|---|-----|---|----|------|--------------|---|----|
|                         |                                                                       | SG                              | 07 | - | 100 | - | W  | WC   | 1253         | - | 01 |
| <b>Type</b>             |                                                                       | 07                              |    |   |     |   |    |      |              |   |    |
| <b>Connection</b>       |                                                                       | DN15                            | 15 |   |     |   |    |      |              |   |    |
|                         | DN20                                                                  | 20                              |    |   |     |   |    |      |              |   |    |
|                         | DN25                                                                  | 25                              |    |   |     |   |    |      |              |   |    |
|                         | DN32                                                                  | 32                              |    |   |     |   |    |      |              |   |    |
|                         | DN40                                                                  | 40                              |    |   |     |   |    |      |              |   |    |
|                         | DN50                                                                  | 50                              |    |   |     |   |    |      |              |   |    |
|                         | DN65                                                                  | 65                              |    |   |     |   |    |      |              |   |    |
|                         | DN80                                                                  | 80                              |    |   |     |   |    |      |              |   |    |
|                         | DN100                                                                 | 100                             |    |   |     |   |    |      |              |   |    |
|                         | DN125                                                                 | 125                             |    |   |     |   |    |      |              |   |    |
|                         | DN150                                                                 | 150                             |    |   |     |   |    |      |              |   |    |
| <b>Housing material</b> |                                                                       | Steel galvanized                |    |   |     |   | U  |      |              |   |    |
|                         | Stainless steel 1.4408                                                |                                 |    |   |     |   | W  |      |              |   |    |
| <b>Sliding pair</b>     |                                                                       | Stainless steel/special carbon  |    |   |     |   | WC |      |              |   |    |
|                         | Stainless steel/SFC                                                   |                                 |    |   |     |   | WF |      |              |   |    |
|                         | STN2                                                                  |                                 |    |   |     |   | WN |      |              |   |    |
| <b>Actuator</b>         |                                                                       | Actuator 125, Spring assembly 3 |    |   |     |   |    | 1253 |              |   |    |
|                         | Actuator 125, Spring assembly 4                                       |                                 |    |   |     |   |    | 1254 |              |   |    |
|                         | Actuator 250, Spring assembly 3                                       |                                 |    |   |     |   |    | 2503 |              |   |    |
|                         | Actuator 250, Spring assembly 4                                       |                                 |    |   |     |   |    | 2504 |              |   |    |
|                         | Actuator 500, Spring assembly 6                                       |                                 |    |   |     |   |    | 5006 |              |   |    |
|                         | Actuator 500, Spring assembly 8                                       |                                 |    |   |     |   |    | 5008 |              |   |    |
| <b>Special version</b>  |                                                                       | described in the item text      |    |   |     |   |    |      | 01,02,03.... |   |    |
|                         | Kvs values reduced to                                                 |                                 |    |   |     |   |    |      |              |   |    |
|                         | Characteristic curve linear/equal percentage                          |                                 |    |   |     |   |    |      |              |   |    |
|                         | digital position controller type 8049, 4-wire                         |                                 |    |   |     |   |    |      |              |   |    |
|                         | digital position controller type 8049, 2-wire                         |                                 |    |   |     |   |    |      |              |   |    |
|                         | digital positioner type 8049, ASI version                             |                                 |    |   |     |   |    |      |              |   |    |
|                         | digital position controller type 8049, 2-wire Ex version              |                                 |    |   |     |   |    |      |              |   |    |
|                         | P/P-Positioner Type 8047                                              |                                 |    |   |     |   |    |      |              |   |    |
|                         | I/P-Positioner Type 8047                                              |                                 |    |   |     |   |    |      |              |   |    |
|                         | I/P-Positioner Type 8047 EEx ib IIC T6 with plug connector M12x1      |                                 |    |   |     |   |    |      |              |   |    |
|                         | 2 Inductive limit switch M12x1 10 ... 30 VDC PNP                      |                                 |    |   |     |   |    |      |              |   |    |
|                         | 2 Limit switch inductive M12x1 10 ... 55 VDC PNP/NPN                  |                                 |    |   |     |   |    |      |              |   |    |
|                         | additional metal bellows Stainless steel 1.4571 (max. Pressure 33bar) |                                 |    |   |     |   |    |      |              |   |    |



## Positioner



analog position controller  
8047

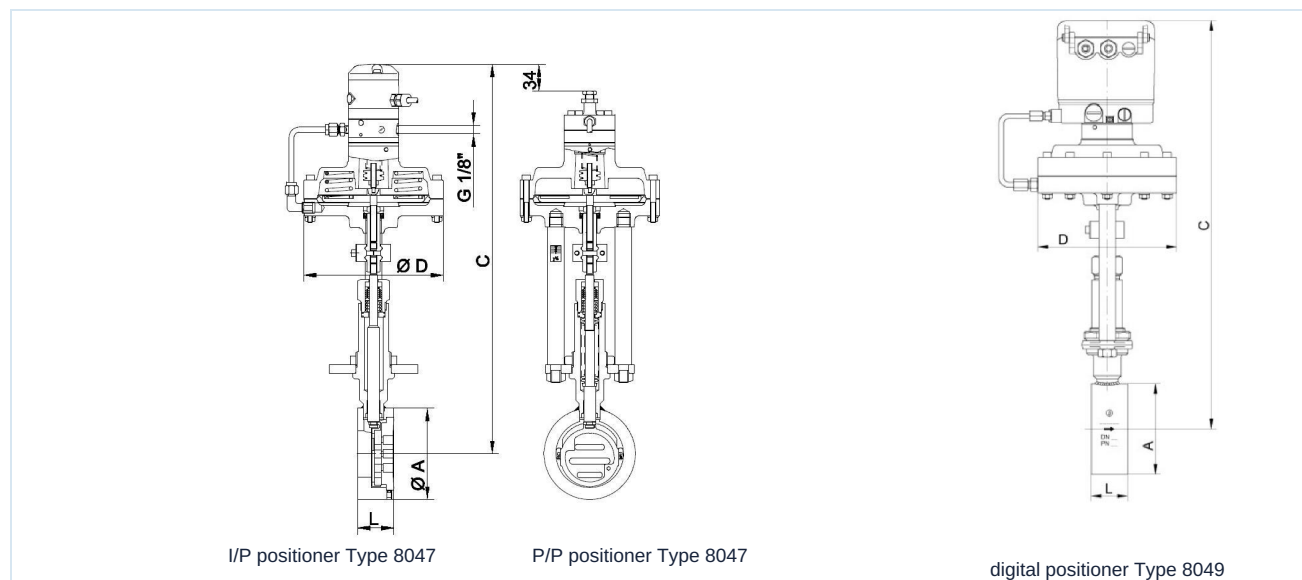


digital positioner  
8049

|                            |                                                                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| analog position controller |                                                                                                                                                                             |
| Control signal             | pneumatic: 0,2...1bar<br>electropneumatic: 0/4...20mA                                                                                                                       |
| Control pressure           | 3...6bar                                                                                                                                                                    |
| Control medium             | non-lubricated, dry compressed air or neutral gases, 5µm filtered                                                                                                           |
| Ambient temperature        | -15...+60°C                                                                                                                                                                 |
| Control ratio              | 30:1                                                                                                                                                                        |
| Hysteresis                 | < ±1%                                                                                                                                                                       |
| Self air consumption       | 400...600 NI/h (depending on supply pressure)                                                                                                                               |
| Pressure port              | G1/8"                                                                                                                                                                       |
| Degree of protection       | IP54 according to EN 60529                                                                                                                                                  |
| digital positioner         |                                                                                                                                                                             |
| Supply voltage             | 4-wire connection 24VDC<br>2-wire connection none                                                                                                                           |
| Burden voltage             | 4-wire connection 3,5V at 20mA<br>2-wire connection 6,2V at 20mA                                                                                                            |
| Control signal             | 4-wire connection: 0/4 ... 20mA<br>2-wire connection: 4 ... 20mA                                                                                                            |
| Control pressure           | 4-wire connection: 4 ... 6bar<br>2-wire connection: 4,5...6bar                                                                                                              |
| Control medium             | 4-wire connection non-lubricated, dry compressed air or neutral gases, 40µm filtered<br>2-wire connection non-lubricated, dry compressed air or neutral gases, 5µm filtered |
| Ambient temperature        | 4-wire connection: -20...+75°C<br>2-wire connection: -10...+75°C                                                                                                            |
| Control ratio              | Characteristic curve linear 40:1<br>Characteristic curve equal percentage 80:1                                                                                              |
| Self air consumption       | none                                                                                                                                                                        |
| Pressure port              | G1/8"                                                                                                                                                                       |
| Degree of protection       | IP65 according to EN 60529                                                                                                                                                  |
| Accessories                | Limit switch, visual position indicator, analog feedback module for digital controller                                                                                      |



## Dimensions



| Nominal size<br>DN [mm] | A   | C                 |                    | Actuator D |      | L  | Stroke | Weight [approx. kg] |      |
|-------------------------|-----|-------------------|--------------------|------------|------|----|--------|---------------------|------|
|                         |     | analog controller | digital controller | D125       | D250 |    |        | D125                | D250 |
| 15                      | 53  | 430               | 460                | 165        | 222  | 33 | 6      | 6,9                 | 9,1  |
| 20                      | 62  | 435               | 465                | 165        | 222  | 33 | 6      | 7,0                 | 9,2  |
| 25                      | 72  | 440               | 470                | 165        | 222  | 33 | 6      | 7,2                 | 9,4  |
| 32                      | 82  | 445               | 475                | 165        | 222  | 33 | 6      | 7,5                 | 9,7  |
| 40                      | 92  | 450               | 480                | 165        | 222  | 33 | 6      | 7,7                 | 9,9  |
| 50                      | 108 | 460               | 490                | 165        | 222  | 43 | 8      | 8,9                 | 11,1 |
| 65                      | 127 | 470               | 500                | 165        | 222  | 46 | 8      | 9,7                 | 11,9 |
| 80                      | 142 | 480               | 510                | 165        | 222  | 46 | 8      | 10,3                | 12,5 |
| 100                     | 164 | 490               | 520                | 165        | 222  | 52 | 8,5    | 11,8                | 14,0 |
| 125                     | 194 | 505               | 535                | 165        | 222  | 56 | 8,5    | 14,0                | 16,2 |
| 150                     | 219 | 520               | 550                | 165        | 222  | 56 | 8,5    | 15,5                | 17,7 |

## Application limits - maximum permissible inlet pressures in bar

| Nominal size<br>DN [mm] | Stainless steel/special carbon - Stainless steel/SFC |       |       |       |       |       | STN2  |       |       |       |       |       |
|-------------------------|------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                         | 100°C                                                | 150°C | 200°C | 250°C | 300°C | 350°C | 100°C | 150°C | 200°C | 250°C | 300°C | 350°C |
| 15 - 25                 | 40                                                   | 36    | 31    | 28    | 26    | 24    | 40    | 36    | 31    | 28    | 26    | 24    |
| 32                      | 40                                                   | 36    | 31    | 28    | 26    | 24    | 40    | 36    | 31    | 28    | 25    | 22    |
| 40                      | 40                                                   | 36    | 31    | 28    | 26    | 24    | 26    | 25    | 24    | 19    | 16    | 14    |
| 50                      | 40                                                   | 36    | 31    | 28    | 26    | 24    | 40    | 36    | 31    | 28    | 26    | 24    |
| 65                      | 40                                                   | 36    | 31    | 28    | 26    | 24    | 37    | 35    | 31    | 27    | 22    | 19    |
| 80                      | 40                                                   | 36    | 31    | 28    | 26    | 24    | 22    | 20    | 19    | 16    | 13    | 11    |
| 100                     | 24                                                   | 23    | 22    | 19    | 17    | 16    | 13    | 12    | 12    | 9,0   | 8,0   | 6,0   |
| 125                     | 16                                                   | 15    | 14    | 13    | 11    | 10    | 8     | 8     | 7,0   | 6,0   | 5,0   | 4,0   |
| 150                     | 16                                                   | 16    | 16    | 16    | 14    | 13    | 10    | 10    | 9,0   | 7,0   | 6,0   | 5,0   |

SFC max. 300°C



**Permissible differential pressures - analog position controller (for temperatures up to 120°C)\***  
**Sliding pair Stainless steel/special carbon - Stainless steel/SFC**

| Nominal size<br>DN [mm] | permissible differential pressure [bar] |                      |                                |                      |
|-------------------------|-----------------------------------------|----------------------|--------------------------------|----------------------|
|                         | Effective actuator area 125cm²          |                      | Effective actuator area 250cm² |                      |
|                         | Spring assembly 3 (Standard)            | Spring assembly 4    | Spring assembly 3 (Standard)   | Spring assembly 4    |
|                         | Supply pressure 4bar                    | Supply pressure 5bar | Supply pressure 3bar           | Supply pressure 4bar |
| 15                      | 40                                      | 40                   | 40                             | 40                   |
| 20                      | 40                                      | 40                   | 40                             | 40                   |
| 25                      | 40                                      | 40                   | 40                             | 40                   |
| 32                      | 40                                      | 40                   | 40                             | 40                   |
| 40                      | 29                                      | 36                   | 40                             | 40                   |
| 50                      | 17                                      | 21                   | 29                             | 35                   |
| 65                      | 14                                      | 17                   | 24                             | 29                   |
| 80                      | 8                                       | 10                   | 14                             | 17                   |
| 100                     | 5                                       | 6                    | 9                              | 10                   |
| 125                     | 3                                       | 4                    | 6                              | 7                    |
| 150                     | 2                                       | 3                    | 4                              | 5                    |

\*At temperatures above 120°C observe application limits

**Permissible differential pressures - analog position controller (for temperatures up to 120°C)\***  
**Sliding pair STN2**

| Nominal size<br>DN [mm] | permissible differential pressure [bar] |                      |                                |                      |
|-------------------------|-----------------------------------------|----------------------|--------------------------------|----------------------|
|                         | Effective actuator area 125cm²          |                      | Effective actuator area 250cm² |                      |
|                         | Spring assembly 3 (Standard)            | Spring assembly 4    | Spring assembly 3 (Standard)   | Spring assembly 4    |
|                         | Supply pressure 4bar                    | Supply pressure 5bar | Supply pressure 3bar           | Supply pressure 4bar |
| 15                      | 40                                      | 40                   | 40                             | 40                   |
| 20                      | 37                                      | 40                   | 40                             | 40                   |
| 25                      | 25                                      | 31                   | 40                             | 40                   |
| 32                      | 17                                      | 22                   | 30                             | 36                   |
| 40                      | 11                                      | 14                   | 19                             | 24                   |
| 50                      | 6                                       | 8                    | 11                             | 13                   |
| 65                      | 5                                       | 6                    | 9                              | 11                   |
| 80                      | 3                                       | 3,5                  | 5                              | 6                    |
| 100                     | 1,5                                     | 2                    | 3                              | 4                    |
| 125                     | -                                       | 1,5                  | 2                              | 2,5                  |
| 150                     | -                                       | 1                    | 1,5                            | 1,8                  |

\*At temperatures above 120°C observe application limits



**Permissible differential pressures - digital positioner (for temperatures up to 120°C)\***  
**Sliding pair Stainless steel/special carbon - Stainless steel/SFC**

| Nominal size<br>DN [mm] | permissible differential pressure [bar] |                        |                                |                      |                        |
|-------------------------|-----------------------------------------|------------------------|--------------------------------|----------------------|------------------------|
|                         | Effective actuator area 125cm²          |                        | Effective actuator area 250cm² |                      |                        |
|                         | Spring assembly 3 (Standard)            | Spring assembly 4      | Spring assembly 3 (Standard)   | Spring assembly 4    | Spring assembly 6      |
|                         | Supply pressure 4,5bar                  | Supply pressure 5,5bar | Supply pressure 3bar           | Supply pressure 4bar | Supply pressure 5,3bar |
| 15                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 20                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 25                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 32                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 40                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 50                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 65                      | 37                                      | 40                     | 40                             | 40                   | 40                     |
| 80                      | 23                                      | 29                     | 40                             | 40                   | 40                     |
| 100                     | 15                                      | 16                     | 24                             | 25                   | 33                     |
| 125                     | 10                                      | 11                     | 16                             | 16                   | 23                     |
| 150                     | 7                                       | 7,5                    | 13                             | 15                   | 16                     |

\*At temperatures above 120°C observe application limits

**Permissible differential pressures - digital positioner (for temperatures up to 120°C)\***  
**Sliding pair STN2**

| Nominal size<br>DN [mm] | permissible differential pressure [bar] |                        |                                |                      |                        |
|-------------------------|-----------------------------------------|------------------------|--------------------------------|----------------------|------------------------|
|                         | Effective actuator area 125cm²          |                        | Effective actuator area 250cm² |                      |                        |
|                         | Spring assembly 3 (Standard)            | Spring assembly 4      | Spring assembly 3 (Standard)   | Spring assembly 4    | Spring assembly 6      |
|                         | Supply pressure 4,5bar                  | Supply pressure 5,5bar | Supply pressure 3bar           | Supply pressure 4bar | Supply pressure 5,7bar |
| 15                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 20                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 25                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 32                      | 40                                      | 40                     | 40                             | 40                   | 40                     |
| 40                      | 26                                      | 27                     | 27                             | 27                   | 27                     |
| 50                      | 18                                      | 20                     | 31                             | 38                   | 40                     |
| 65                      | 15                                      | 16                     | 26                             | 31                   | 38                     |
| 80                      | 9                                       | 9,5                    | 15                             | 19                   | 22                     |
| 100                     | 5                                       | 5,5                    | 9                              | 11                   | 13,5                   |
| 125                     | 3                                       | 3,5                    | 6                              | 7                    | 8,9                    |
| 150                     | 2                                       | 2,5                    | 4,5                            | 5,5                  | 7,8                    |

\*At temperatures above 120°C observe application limits



## Kvs values

| Nominal size<br>DN [mm] | Characteristic curve | Kvs value<br>[m³/h] |     |     |      |      |      |      |      |      |      |      |      |       |
|-------------------------|----------------------|---------------------|-----|-----|------|------|------|------|------|------|------|------|------|-------|
|                         |                      | 100%                | 63% | 40% | 25%  | 20%  | 16%  | 12%  | 10%  | 6,3% | 2,5% | 2%   | 1%   | 0,4%  |
| 15                      | linear               | 4                   | 2,6 | 1,7 | 1,4  | -    | 0,71 | 0,49 | 0,44 | 0,26 | 0,14 | 0,08 | 0,04 | 0,018 |
|                         | equal percentage     | 1,7                 | -   | 1,1 | -    | 0,35 | -    | -    | -    | 0,1  | -    | -    | -    | -     |
| 20                      | linear               | 6,4                 | -   | -   | -    | -    | 1    | -    | -    | -    | -    | 0,13 | -    | -     |
|                         | equal percentage     | 3                   | -   | 1,5 | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| 25                      | linear               | 11                  | 6,4 | 4   | -    | -    | 1,6  | -    | 0,93 | 0,62 | 0,26 | -    | 0,14 | 0,04  |
|                         | equal percentage     | 5                   | -   | 2,4 | -    | 1,1  | -    | -    | -    | 0,35 | -    | -    | -    | -     |
| 32                      | linear               | 16                  | 10  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 8                   | 4,7 | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| 40                      | linear               | 26                  | 16  | 11  | 7    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 11                  | 8,5 | -   | 2,75 | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| 50                      | linear               | 45                  | 28  | 20  | 12   | 10   | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 19                  | 12  | -   | -    | -    | 3    | -    | -    | -    | -    | -    | -    | -     |
| 65                      | linear               | 52                  | 35  | -   | 15   | -    | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 30                  | -   | -   | 8    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| 80                      | linear               | 92                  | 58  | 40  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 48                  | 35  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| 100                     | linear               | 154                 | 95  | 62  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 77                  | 48  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| 125                     | linear               | 237                 | -   | 95  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 116                 | -   | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| 150                     | linear               | 338                 | 212 | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |
|                         | equal percentage     | 147                 | 90  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    | -     |

Illustrations non-binding

Design, dimensional and material changes reserved

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