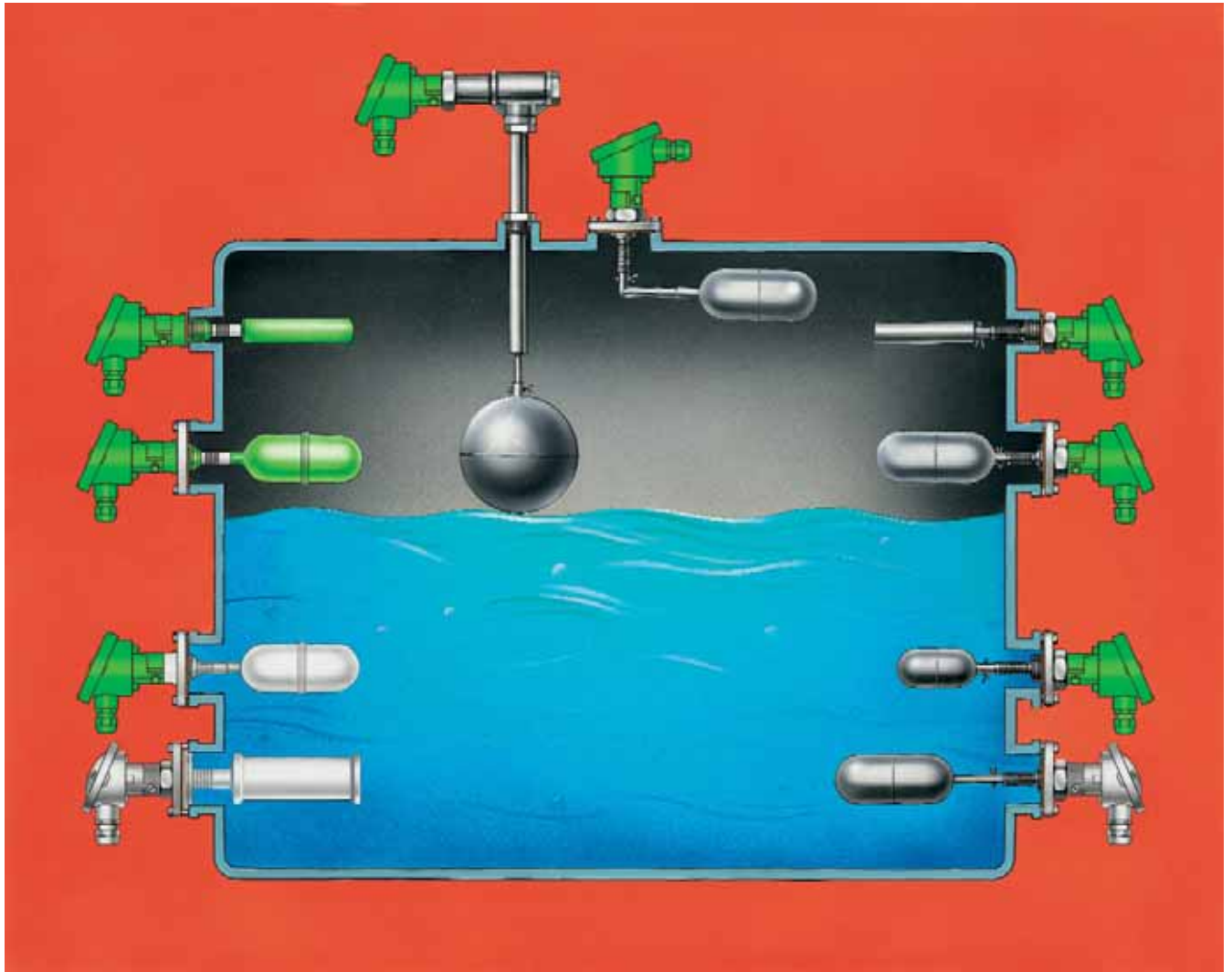


# Jola SM... float switches



## Mode of operation

The rising or falling liquid level causes the float to move marginally up or down. When the float rises, it activates a microswitch in the form of a changeover switch.

**These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).**

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# SM... float switches

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# SM... float switches

- for mounting from the side
- with microswitch

| Type               | SM.../3  | SM.../1   |
|--------------------|--|---|
| Application        | applications up to max. 250 V  | for light current applications  |
| Switching voltage  | between<br>AC/DC 24 V and AC/DC 250 V  | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current  | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA   | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA       |
| Switching capacity | max. 1,000 VA  | max. 4 VA   |
| VDE marks licence  | <br>+<br> |  |

## Mode of operation

The rising or falling liquid level causes the float to move marginally up or down. When the float rises, it activates a microswitch in the form of a changeover switch.

**These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).**

The following types are available:

| Types                                   | Bellows material   | Float material   | Float dimensions   | Page                              |
|---|--|--|--|-----------------------------------|
| SM/P/.<br>SMG/P/.                       | PP<br>PP   | PP<br>PP   | Ø 29 x 133 mm<br>Ø 63 x 140 mm                                   | 2-1-2<br>2-1-3                    |
| SMG/PVDF/.<br>SM/PTFE/.                 | PVDF<br>PTFE   | PVDF<br>PTFE   | Ø 63 x 140 mm<br>Ø 59 x 155 mm                                   | 2-1-4<br>2-1-5                    |
| SMG/A/P/.<br>SMG/A/E/.                  | stainless steel 316 Ti<br>stainless steel 316 Ti   | PP<br>stainless steel 316 Ti   | Ø 63 x 140 mm<br>Ø 63 x 140 mm                                   | 2-1-6<br>2-1-6                    |
| SM/E/.<br>SMK/E/.<br>SMG/E/.<br>SMH/E/. | stainless steel 316 Ti<br>stainless steel 316 Ti<br>stainless steel 316 Ti<br>stainless steel 316 Ti | stainless steel 316 Ti<br>stainless steel 316 Ti<br>stainless steel 316 Ti<br>stainless steel 316 Ti | Ø 28 x 120 mm<br>Ø 48 x 90 mm<br>Ø 63 x 140 mm<br>Ø 95 mm (ball) | 2-1-7<br>2-1-8<br>2-1-9<br>2-1-10 |



# SM/P/. float switches made of PP

Installation of the float possible through hole accepting G1 thread



SM/P/.

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                | SM/P/3  | SM/P/1  |
|-------------------------------|---|---|
| Application                   | for applications up to 250 V  | for light current applications  |
| Switching voltage             | between<br>AC/DC 24 V and AC/DC 250 V   | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current             | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity            | max. 1,000 VA   | max. 4 VA   |
| Operating principle           | microswitch, changeover contact   |   |
| Recommended application       | —   | via Jola KR .. protection relay<br>(see pages 12-0-0 and follow.)               |
| Bellows material              | PP  |   |
| Float material                | PP  |   |
| Float dimensions              | cylindrical float 29 mm Ø x 133 mm long   |   |
| Screw-in nipple               | PP, G1  |   |
| <b>On request: flange</b>     | <b>square blind flange with G1 thread made of PP, PVDF,<br/>steel St 37 or stainless steel 316 Ti<br/>(dimensions see page 2-1-15)<br/>or other flanges with any desired dimensions</b> |   |
| Float protection class        | IP 68   |   |
| Connection head               | PP with M 20 x 1.5 cable entry, protection class IP 54; on request:<br>connection head made of cast aluminium, protection class IP 54<br>from the side                                  |   |
| Mounting                      | from 0°C to + 90°C<br>(inside the connection head: from 0°C to + 60°C)  |   |
| Temperature application range | for pressureless applications<br>max. 2 bar at + 20°C<br>(without flange or with flange made of steel or stainless steel;<br>with square flange made of PP or PVDF: 0 bar)              |   |
| Pressure resistance           |   |   |
| Test pressure                 |   |   |
| <b>Application</b>            | <b>only for use in liquids with a specific gravity ≥ 0.82 g/cm<sup>3</sup></b>  |   |

Further technical data on pages 2-1-11 and following

Mounting instructions see page 2-1-28



# SMG/P/. float switches made of PP



SMG/P/.



SMG/P/. with PP square flange

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                | SMG/P/3   | SMG/P/1   |
|-------------------------------|---|---|
| Application                   | for applications up to 250 V  | for light current applications  |
| Switching voltage             | between<br>AC/DC 24 V and AC/DC 250 V   | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current             | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity            | max. 1,000 VA   | max. 4 VA   |
| Operating principle           | microswitch, changeover contact   |   |
| Recommended application       | —   via Jola KR .. protection relay (see pages 12-0-0 and follow.)  |   |
| Bellows material              | PP  |   |
| Float material                | PP  |   |
| Float dimensions              | cylindrical float 63 mm Ø x 140 mm long;<br>on request: ball float 85 mm Ø  |   |
| Screw-in nipple               | PP, G1  |   |
| On request: flange            | <b>square blind flange with G1 thread made of PP, PVDF, steel St 37 or stainless steel 316 Ti (dimensions see page 2-1-15) or other flanges with any desired dimensions</b> |   |
| Float protection class        | IP 68   |   |
| Connection head               | PP with M 20 x 1.5 cable entry, protection class IP 54; on request: connection head made of cast aluminium, protection class IP 54 from the side                            |   |
| Mounting                      |   |   |
| Temperature application range | from 0°C to + 90°C<br>(inside the connection head: from 0°C to + 60°C)  |   |
| Pressure resistance           | for pressureless applications   |   |
| Test pressure                 | max. 2 bar at + 20°C<br>(without flange or with flange made of steel or stainless steel;<br>with square flange made of PP or PVDF: 0 bar)                                   |   |
| Application                   | <b>only for use in liquids with a specific gravity ≥ 0.7 g/cm<sup>3</sup></b>   |   |

Further technical data on pages 2-1-11 and following

Mounting instructions see page 2-1-28



# SMG/PVDF/. float switches made of PVDF



SMG/PVDF/.



SMG/PVDF/. with PVDF square flange

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                | SMG/PVDF/3   | SMG/PVDF/1  |
|-------------------------------|--|---|
| Application                   | for applications up to 250 V   | for light current applications  |
| Switching voltage             | between<br>AC/DC 24 V and AC/DC 250 V  | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current             | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA   | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity            | max. 1,000 VA  | max. 4 VA   |
| Operating principle           | microswitch, changeover contact  |   |
| Recommended application       | —<br>via Jola KR .. protection relay<br>(see pages 12-0-0 and follow.)   |   |
| Bellows material              | PVDF   |   |
| Float material                | PVDF   |   |
| Float dimensions              | cylindrical float 63 mm Ø x 140 mm long  |   |
| Screw-in nipple               | PVDF, G1   |   |
| On request: flange            | <b>square blind flange with G1 thread made of PP, PVDF,<br/>steel St 37 or stainless steel 316 Ti<br/>(dimensions see page 2-1-15)<br/>or other flanges with any desired dimensions</b>      |   |
| Float protection class        | IP 68  |   |
| Connection head               | PP with M 20 x 1.5 cable entry, protection class IP 54; on request:<br>connection head made of cast aluminium, protection class IP 54<br>from the side                                       |   |
| Mounting                      | from 0°C to + 100°C  |   |
| Temperature application range | (inside the connection head: from 0°C to + 60°C);<br>on request, however <u>without</u><br>VDE marks licence:<br>from 0°C to + 135°C<br>(inside the connection head:<br>from 0°C to + 100°C) |   |
| Pressure resistance           | for pressureless applications  |   |
| Test pressure                 | max. 2 bar at + 20°C<br>(without flange or with flange made of steel or stainless steel;<br>with square flange made of PP or PVDF: 0 bar)  |   |
| Application                   | <b>only for use in liquids with a specific gravity <math>\geq 0.8 \text{ g/cm}^3</math></b>  |   |

Further technical data on pages 2-1-11 and following

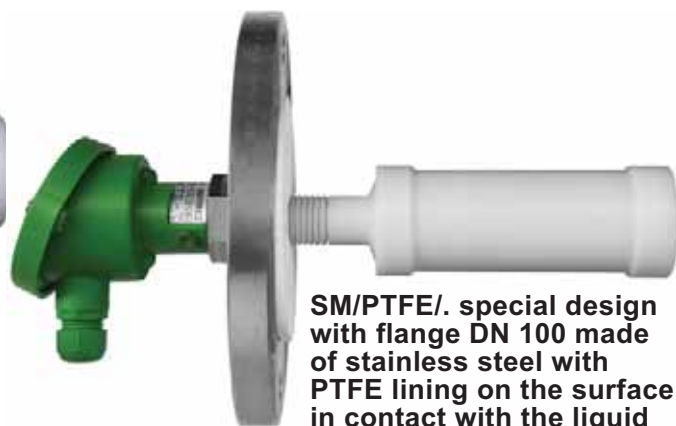
Mounting instructions see page 2-1-28



# SM/PTFE/. float switches made of PTFE



**SM/PTFE/.**  
with square flange made of stainless steel with PTFE lining on the surface in contact with the liquid



**SM/PTFE/.** special design  
with flange DN 100 made of stainless steel with PTFE lining on the surface in contact with the liquid

**These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).**

| Technical data                        | SM/PTFE/3  | SM/PTFE/1   |
|---------------------------------------|--|---|
| Application                           | for applications up to 250 V   | for light current applications  |
| Switching voltage                     | between<br>AC/DC 24 V and AC/DC 250 V  | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current                     | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA   | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity                    | max. 1,000 VA  | max. 4 VA   |
| Operating principle                   | microswitch, changeover contact  |   |
| Recommended application               | —  | via Jola KR .. protection relay<br>(see pages 12-0-0 and follow.)               |
| Bellows material                      | PTFE   |   |
| Float material                        | PTFE   |   |
| Float dimensions                      | cylindrical float 59 mm Ø x 155 mm long  |   |
| Flange                                | square flange made of PVDF, on request: made of stainless steel 316 Ti, (dimensions see page 2-1-15)<br>with PTFE lining on the surface in contact with the liquid<br>or other flanges with any desired dimensions with PTFE lining<br>on the surface in contact with the liquid                             |   |
| Float protection class                | IP 68  |   |
| Connection head                       | PP with M 20 x 1.5 cable entry, protection class IP 54; on request: connection head made of cast aluminium, protection class IP 54 from the side   |   |
| Mounting                              | from 0°C to + 100°C  |   |
| Temperature application range         | (inside the connection head: from 0°C to + 60°C);<br>on request, however <u>without</u><br>VDE marks licence:<br>from 0°C to + 180°C<br>(inside the connection head:<br>from 0°C to + 100°C)   | —   |
| Pressure resistance/<br>test pressure | for pressureless applications (test pressure: max. 1 bar at + 20°C);<br>on request: pressure resistance up to 2 bar at + 20°C / $\rho \geq 1.0 \text{ g/cm}^3$ ;<br>test pressure max. 3 bar at + 20°C (only with flange made of stainless steel with PTFE lining on the surface in contact with the liquid) |   |
| Application                           | <b>only for use in liquids with a specific gravity <math>\geq 1.0 \text{ g/cm}^3</math></b>  |   |

**Further technical data on pages 2-1-11 and following**

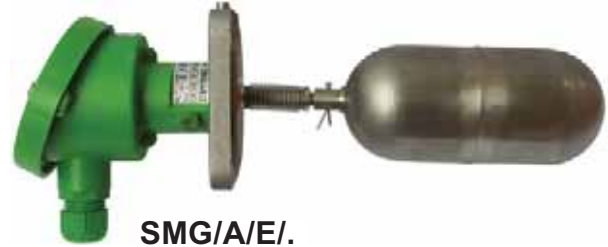
**Mounting instructions see page 2-1-28**



# SMG/A/P/. and SMG/A/E/. float switches



SMG/A/P/.



SMG/A/E/.

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                           | SMG/A/P/3<br>SMG/A/E/3  | SMG/A/P/1<br>SMG/A/E/1  |
|--|---|---|
| Application                              | for applications up to 250 V  | for light current applications  |
| Switching voltage                        | between<br>AC/DC 24 V and AC/DC 250 V   | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current                        | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity                       | max. 1,000 VA   | max. 4 VA   |
| Operating principle                      | microswitch, changeover contact   |   |
| Recommended application                  | —   via Jola KR .. protection relay (see pages 12-0-0 and follow.)  |   |
| Bellows material                         | stainless steel 316 Ti  |   |
| <b>Float material</b>                    | <b>SMG/A/P/.: PP; SMG/A/E/.: stainless steel 316 Ti</b>   |   |
| Float dimensions                         | cylindrical float 63 mm Ø x 140 mm long   |   |
| On request:<br>extension piece for float | horizontal or vertical, as desired  |   |
| Flange                                   | cast aluminium with stainless steel 316 Ti lining on the surface<br>in contact with the liquid (dimensions see page 2-1-15)   |   |
| Float protection class                   | IP 68   |   |
| Connection head                          | PP with M 20 x 1.5 cable entry, protection class IP 54; on request:<br>connection head made of cast aluminium, protection class IP 54<br>from the side                        |   |
| Mounting                                 |   |   |
| Temperature application range            | from 0°C to + 90°C<br>(inside the connection head: from 0°C to + 60°C)  |   |
| Pressure resistance/<br>test pressure    | for pressureless applications (test pressure: max. 2 bar at + 20°C)   |   |
| <b>Application</b>                       | <b>only for use in liquids with a specific gravity <math>\geq 0.7 \text{ g/cm}^3</math><br/>(specification <u>without</u> the optional extension piece for<br/>the float)</b> |   |

Further technical data on pages 2-1-11 and following

Mounting instructions see page 2-1-28



# SM/E/. float switches made of stainless steel

Installation of the float possible through hole accepting G1 thread



SM/E/.

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                        | SM/E/3  | SM/E/1  |
|---------------------------------------|---|---|
| Application                           | for applications up to 250 V  | for light current applications  |
| Switching voltage                     | between<br>AC/DC 24 V and AC/DC 250 V   | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current                     | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity                    | max. 1,000 VA   | max. 4 VA   |
| Operating principle                   | microswitch, changeover contact   |   |
| Recommended application               | —   via Jola KR .. protection relay (see pages 12-0-0 and follow.)  |   |
| Bellows material                      | stainless steel 316 Ti  |   |
| Float material                        | stainless steel 316 Ti  |   |
| Float dimensions                      | cylindrical float 28 mm Ø x 120 mm long   |   |
| Screw-in nipple                       | stainless steel 316 Ti, G1  |   |
| <b>On request: flange</b>             | <b>square blind flange with G1 thread made of steel St 37 or stainless steel 316 Ti (dimensions see page 2-1-15) or other flanges with any desired dimensions</b> |   |
| Float protection class                | IP 68   |   |
| Connection head                       | PP with M 20 x 1.5 cable entry, protection class IP 54; on request: connection head made of cast aluminium, protection class IP 54 from the side                  |   |
| Mounting                              |   |   |
| Temperature application range         | from 0°C to + 100°C<br>(inside the connection head: from 0°C to + 60°C)   |   |
| Pressure resistance/<br>test pressure | for pressureless applications (test pressure: max. 2 bar at + 20°C)   |   |
| <b>Application</b>                    | <b>only for use in liquids with a specific gravity ≥ 1.0 g/cm³</b>  |   |

Further technical data on pages 2-1-11 and following

Mounting instructions see page 2-1-28



# SMK/E/. float switches made of stainless steel



SMK/E/.



SMK/E/.  
with square flange made  
of stainless steel

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                        | SMK/E/3  | SMK/E/1   |
|---------------------------------------|--|---|
| Application                           | for applications up to 250 V   | for light current applications  |
| Switching voltage                     | between<br>AC/DC 24 V and AC/DC 250 V  | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current                     | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA   | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity                    | max. 1,000 VA  | max. 4 VA   |
| Operating principle                   | microswitch, changeover contact  |   |
| Recommended application               | —   via Jola KR .. protection relay<br>(see pages 12-0-0 and follow.)  |   |
| Bellows material                      | stainless steel 316 Ti   |   |
| Float material                        | stainless steel 316 Ti   |   |
| Float dimensions                      | cylindrical float 48 mm Ø x 90 mm long   |   |
| Screw-in nipple                       | stainless steel 316 Ti, G1   |   |
| <b>On request: flange</b>             | <b>square blind flange with G1 thread made of steel St 37 or<br/>stainless steel 316 Ti (dimensions see page 2-1-15)<br/>or other flanges with any desired dimensions</b>                            |   |
| Float protection class                | IP 68  |   |
| Connection head                       | PP with M 20 x 1.5 cable entry, protection class IP 54; on request:<br>connection head made of cast aluminium, protection class IP 54  |   |
| Mounting                              | from the side  |   |
| Temperature application range         | from 0°C to + 100°C<br>(inside the connection head: from 0°C to + 60°C)  |   |
| Pressure resistance/<br>test pressure | for pressureless applications (test pressure: max. 2 bar at + 20°C);<br>on request: pressure resistance up to 2,5 bar at + 20°C /<br>g ≥ 1.0 g/cm <sup>3</sup> (test pressure: max. 4 bar at + 20°C) |   |
| <b>Application</b>                    | <b>only for use in liquids with a specific gravity ≥ 1.0 g/cm<sup>3</sup></b>  |   |

Further technical data on pages 2-1-11 and following

Mounting instructions see page 2-1-28



# SMG/E/. float switches made of stainless steel



SMG/E/.

**SMG/E/.**  
with square flange made of stainless steel  
and horizontal extension piece for the float



**These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).**

| Technical data                           | SMG/E/3   | SMG/E/1   |
|--|---|---|
| Application                              | for applications up to 250 V  | for light current applications  |
| Switching voltage                        | between<br>AC/DC 24 V and AC/DC 250 V   | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current                        | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity                       | max. 1,000 VA   | max. 4 VA   |
| Operating principle                      | microswitch, changeover contact   |   |
| Recommended application                  | —<br>via Jola KR .. protection relay<br>(see pages 12-0-0 and follow.)  |   |
| Bellows material                         | stainless steel 316 Ti, on request: Hastelloy C   |   |
| Float material                           | stainless steel 316 Ti, on request: Hastelloy C   |   |
| Float dimensions                         | cylindrical float 63 mm Ø x 140 mm long   |   |
| On request:<br>extension piece for float | horizontal or vertical, as desired  |   |
| Screw-in nipple                          | stainless steel 316 Ti, on request: Hastelloy C, G1   |   |
| <b>On request: flange</b>                | <b>square blind flange with G1 thread made of steel St 37 or stainless steel 316 Ti (dimensions see page 2-1-15) or other flanges with any desired dimensions</b>                                       |   |
| Float protection class                   | IP 68   |   |
| Connection head                          | PP with M 20 x 1.5 cable entry, protection class IP 54; on request: connection head made of cast aluminium, protection class IP 54 from the side  |   |
| Mounting                                 | from 0°C to + 100°C   |   |
| Temperature application range            | (inside the connection head: from 0°C to + 60°C);<br>on request, however <u>without</u><br>VDE marks licence:<br>from 0°C to + 250°C<br>(inside the connection head:<br>from 0°C to + 100°C)            |   |
| Pressure resistance/<br>test pressure    | for pressureless applications (test pressure: max. 2 bar at + 20°C);<br>on request: pressure resistance up to 4 bar at + 20°C<br>/ $\rho \geq 1.0 \text{ g/cm}^3$ (test pressure: max. 6 bar at + 20°C) |   |
| <b>Application</b>                       | <b>only for use in liquids with a specific gravity <math>\geq 0.7 \text{ g/cm}^3</math> (specification <u>without</u> the optional extension piece for the float)</b>                                   |   |

Further technical data on pages 2-1-11 and following

Mounting instructions see page 2-1-28



# SMH/E/. float switches made of stainless steel



These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                           | SMH/E/3  | SMH/E/1  |
|--|--|--|
| Application                              | for applications up to 250 V   | for light current applications   |
| Switching voltage                        | between<br>AC/DC 24 V and AC/DC 250 V  | between<br>AC/DC 1 V and AC/DC 42 V  |
| Switching current                        | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA<br>max. 1,000 VA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA<br>max. 4 VA |
| Switching capacity                       |  |  |
| Operating principle                      | microswitch, changeover contact  |  |
| Recommended application                  | —  | via Jola KR .. protection relay<br>(see pages 12-0-0 and following)                          |
| Bellows material                         | stainless steel 316 Ti   |  |
| Float material                           | stainless steel 316 Ti   |  |
| Float dimensions                         | ball float 95 mm Ø   |  |
| On request:<br>extension piece for float | horizontal or vertical, as desired   |  |
| Screw-in nipple                          | stainless steel 316 Ti, G1   |  |
| <b>On request: flange</b>                | <b>DN 100 blind flange with G1 thread made of steel St 37 or<br/>stainless steel 316 Ti</b>  |  |
| Float protection class                   | IP 68  |  |
| Connection head                          | PP with M 20 x 1.5 cable entry, protection class IP 54; on request:<br>connection head made of cast aluminium, protection class IP 54<br>from the side   |  |
| Mounting                                 | from 0°C to + 100°C  |  |
| Temperature application range            | (inside the connection head: from 0°C to + 60°C);<br>on request, however <u>without</u>  |  |
|  | VDE marks licence:<br>from 0°C to + 250°C  | —  |
|  | (inside the connection head:<br>from 0°C to + 100°C)   |  |
| Pressure resistance/<br>test pressure    | for pressureless applications (test pressure: max. 2 bar at + 20°C);<br>on request: pressure resistance up to 4 bar at + 20°C /<br>g ≥ 1.0 g/cm <sup>3</sup> (test pressure: max. 6 bar at + 20°C) |  |
| <b>Application</b>                       | <b>only for use in liquids with a specific gravity ≥ 0.7 g/cm<sup>3</sup> (specification <u>without</u> the optional extension piece for the float)</b>  |  |

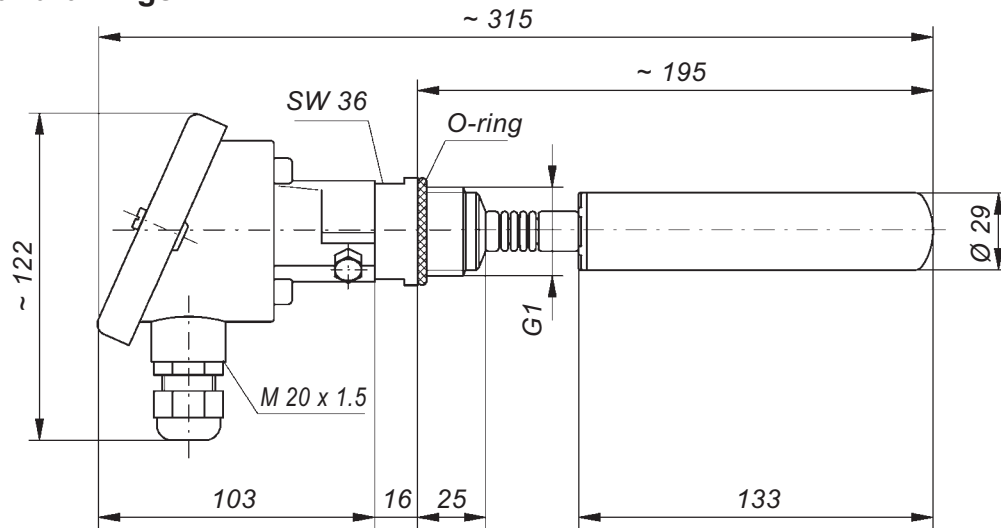
Further technical data on pages 2-1-11 and following

Mounting instructions see page 2-1-28

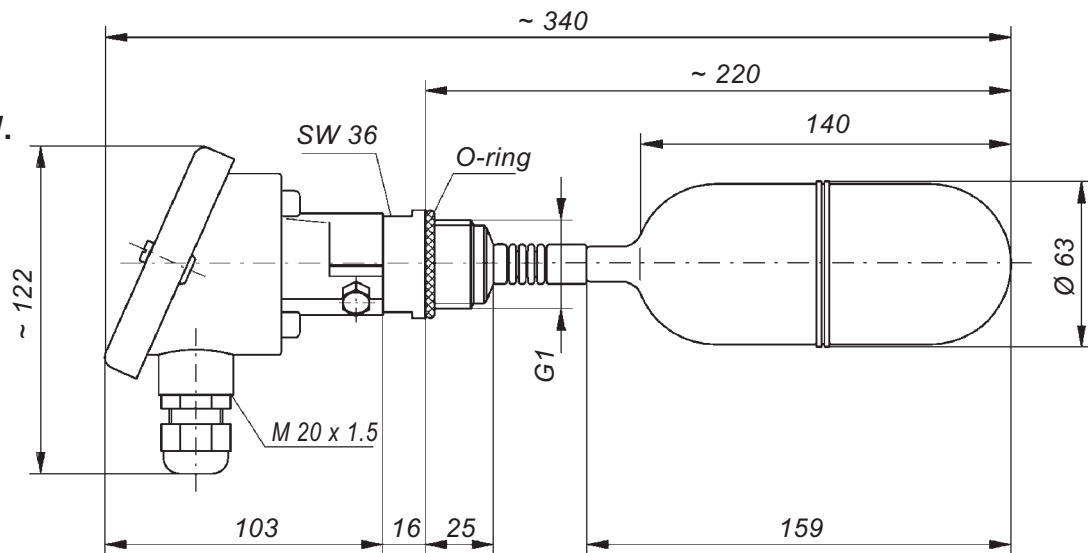


## Dimensional drawings

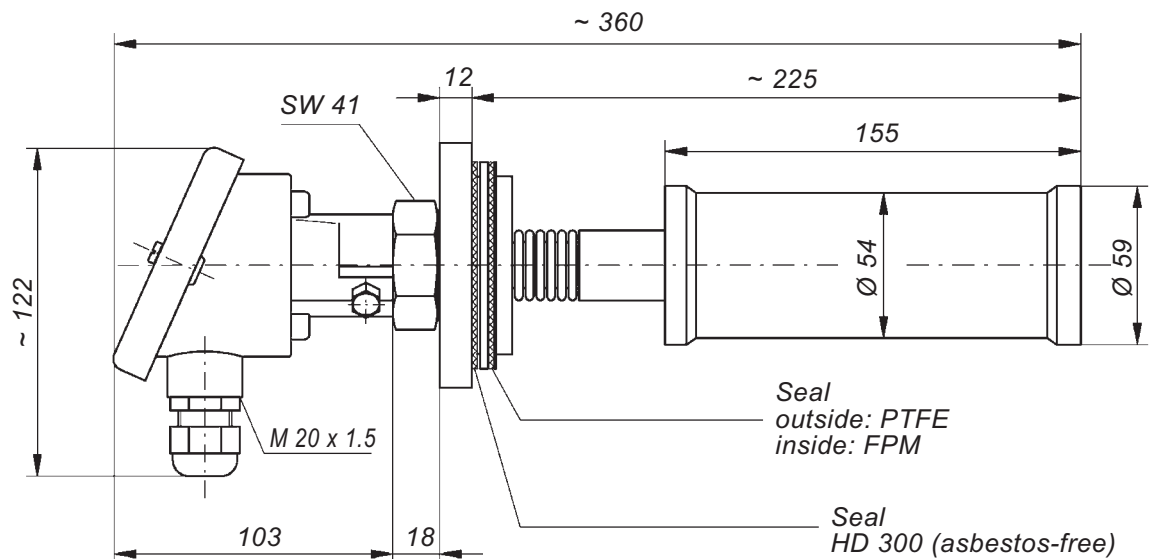
SM/P/.



SMG/P/.  
and  
SMG/PVDF/.

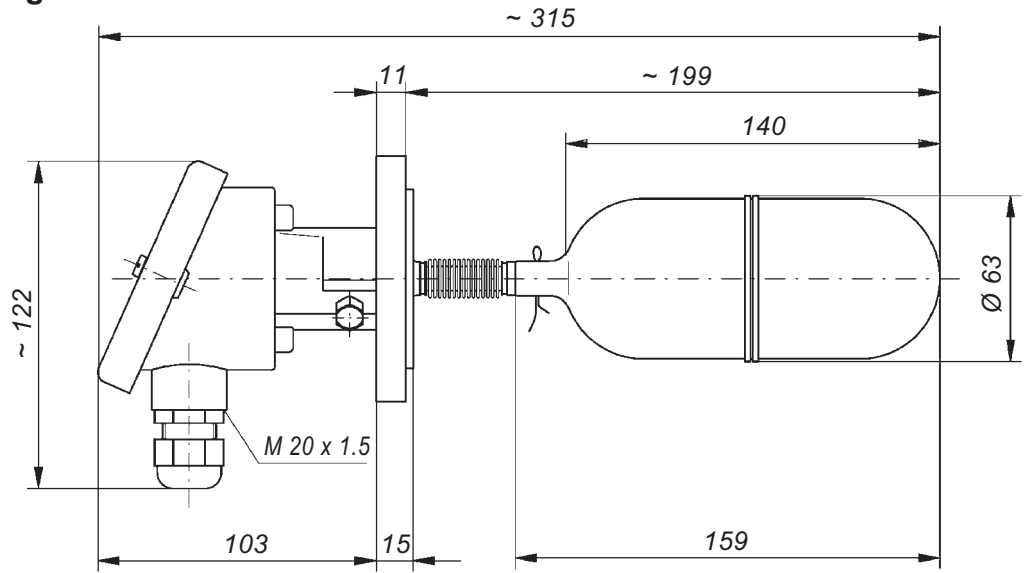


SM/PTFE/.

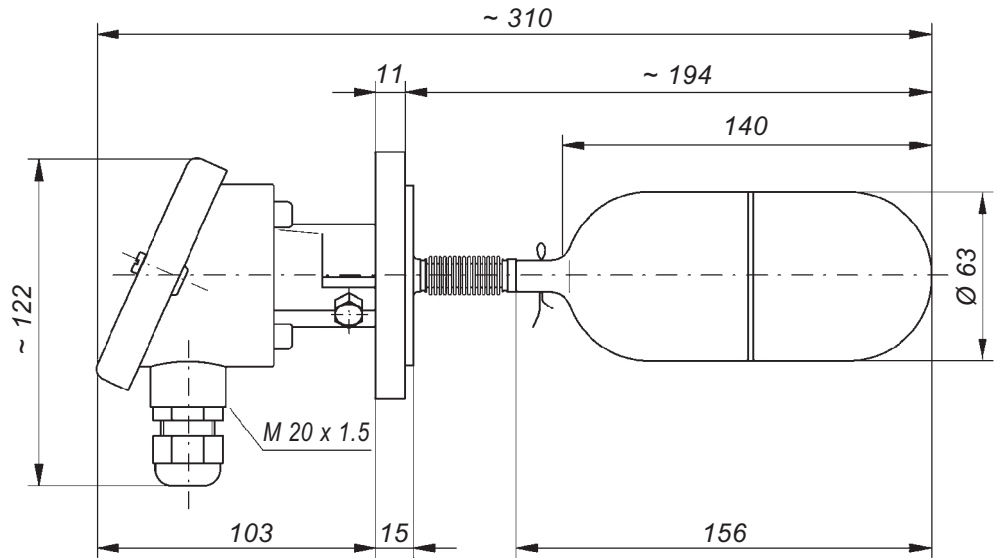


**Dimensional drawings**

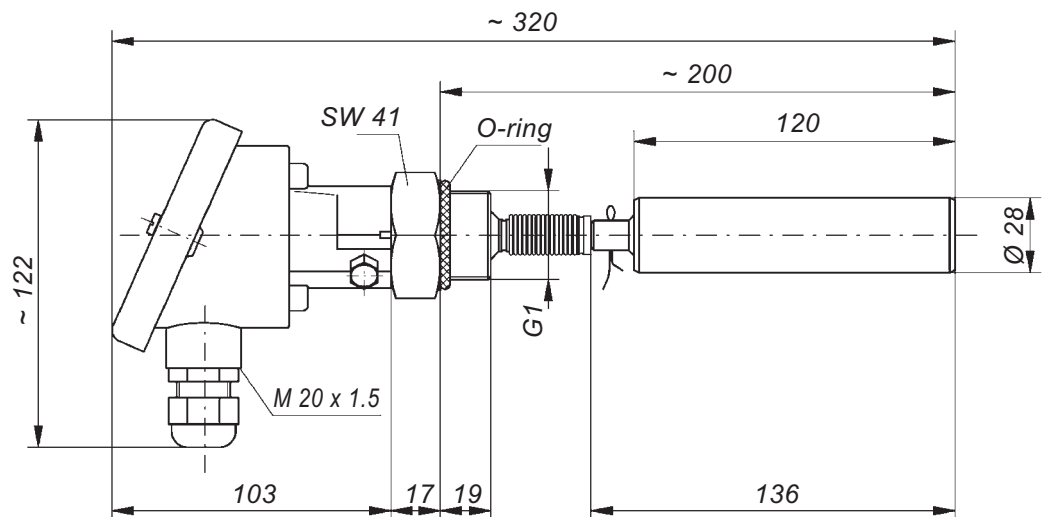
**SMG/A/PI.**



**SMG/A/EI.**

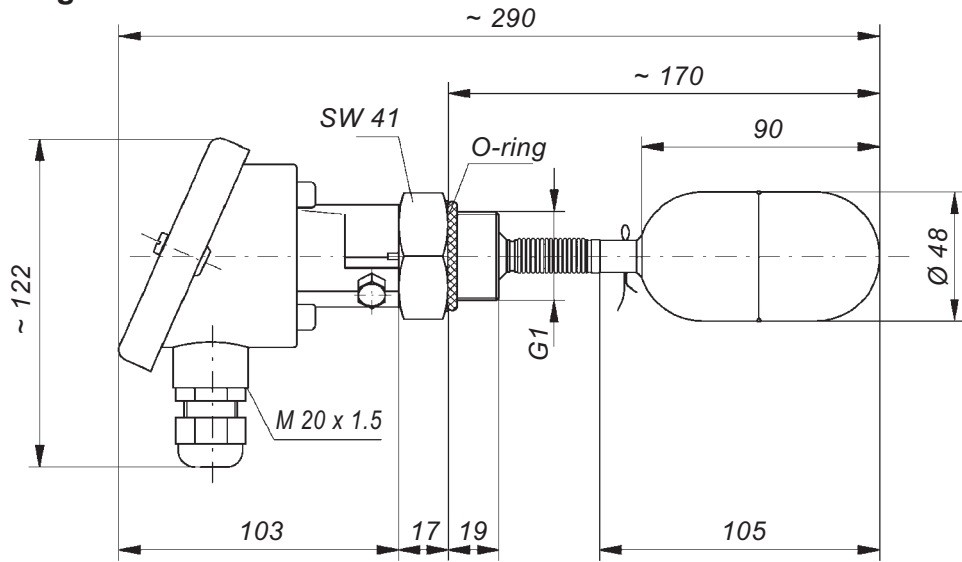


**SM/EI.**

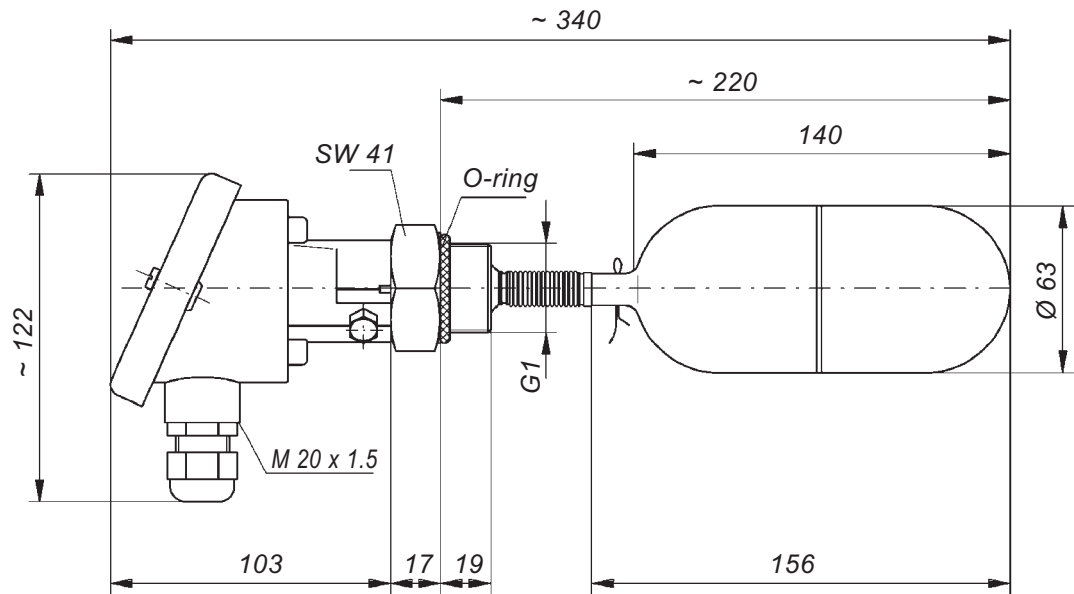


# Dimensional drawings

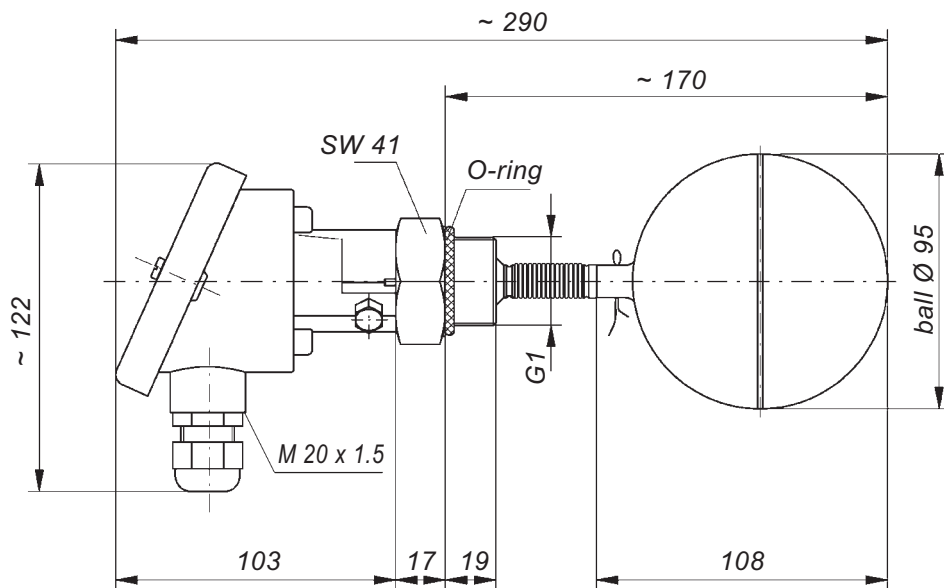
SMK/EI.



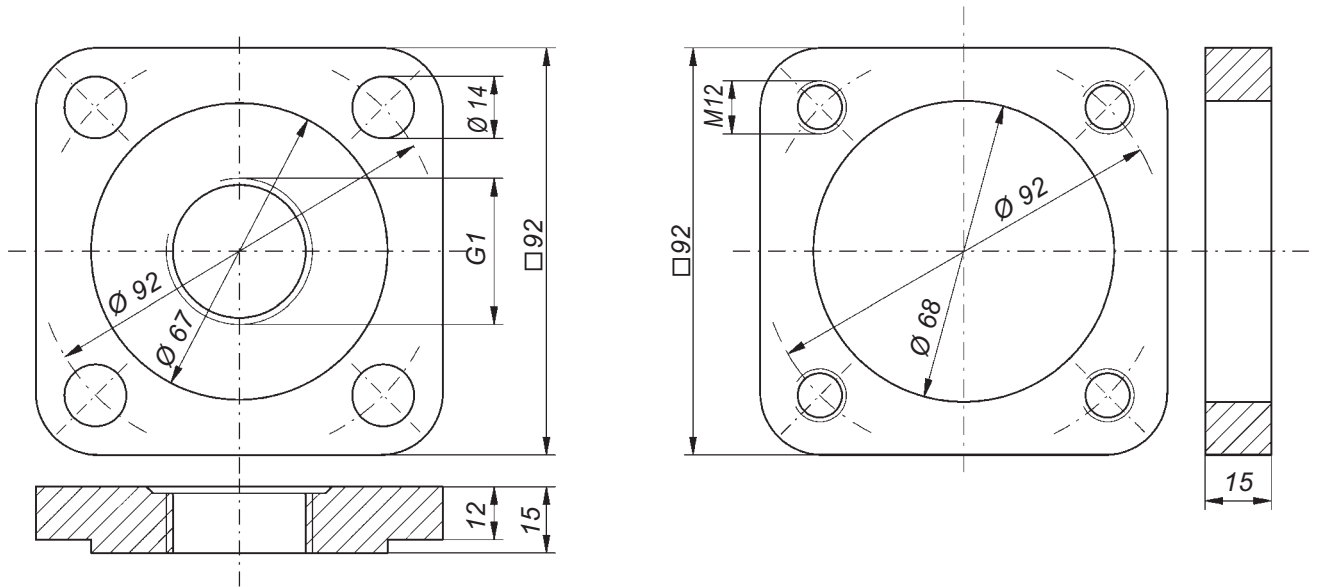
SMG/EI.



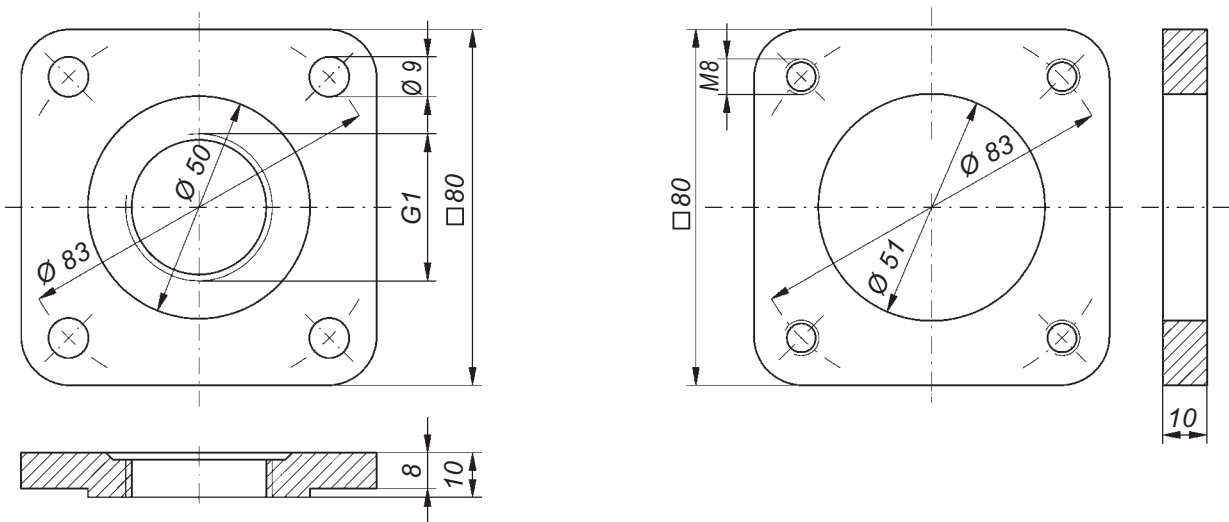
SMH/EI.



**Dimensional drawings**



**Square blind flange with G1 thread for all SM models and corresponding counter flange**

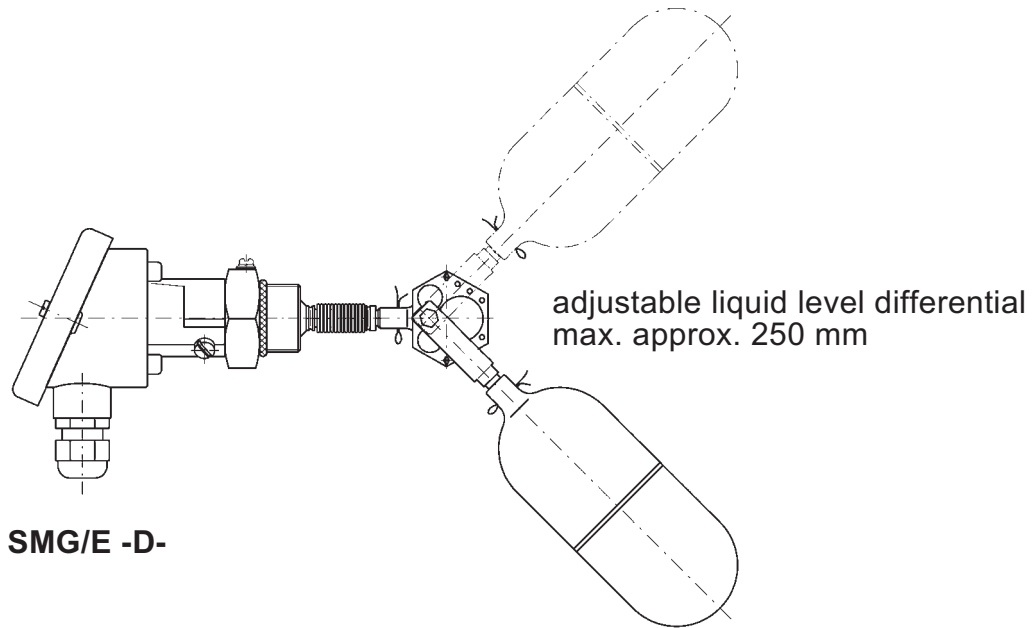


**Square blind flange with G1 thread for SMK/E.L. and corresponding counter flange**



# SMG/E -D- float switch

- for mounting from the side
- with microswitch  
with switching differential



SMG/E -D-



SMG/E -D-  
with square flange  
made of stainless steel

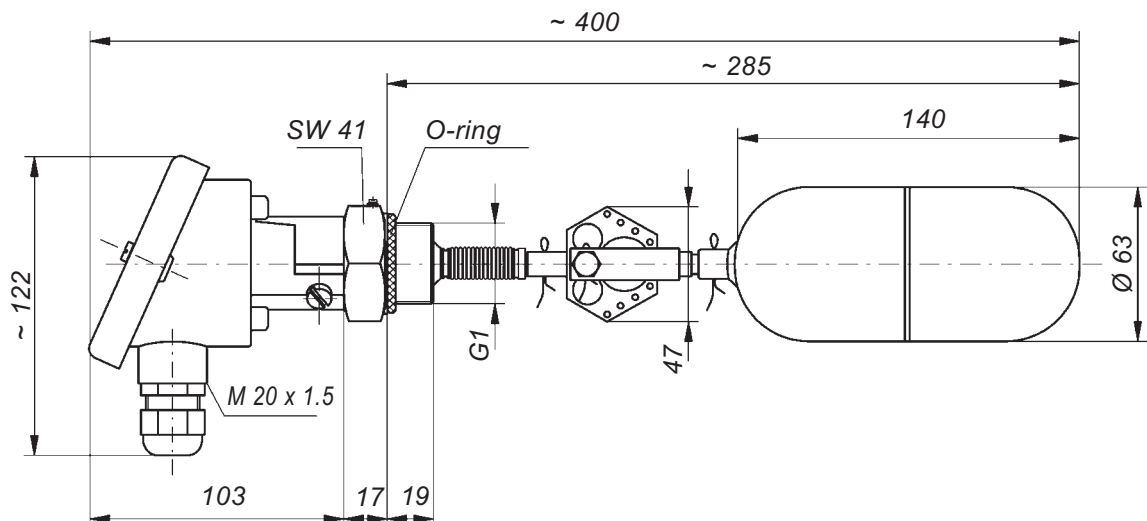


# SMG/E -D- float switch made of stainless steel

This unit is not suitable for use by collateral flows and in turbulent liquids (e.g. in stirrer tanks).

| Technical data                        | SMG/E -D-   |
|---------------------------------------|---|
| Application                           | for applications up to 250 V  |
| Switching voltage                     | between<br>AC 24 V and AC 250 V   |
| Switching current                     | between<br>AC 20 mA and AC 5 (1) A  |
| Switching capacity                    | max. 500 VA   |
| Operating principle                   | microswitch: changeover contact with switching differential   |
| Bellows material                      | stainless steel 316 Ti  |
| Float material                        | stainless steel 316 Ti  |
| Float dimensions                      | cylindrical float 63 mm Ø x 140 mm long;<br>on request: ball float 95 mm Ø  |
| Screw-in nipple                       | stainless steel 316 Ti, G1  |
| <b>On request: flange</b>             | <b>square blind flange with G1 thread made of<br/>steel St 37 or stainless steel 316 Ti<br/>(dimensions see page 2-1-15)<br/>or other flanges with any desired dimensions</b> |
| Float protection class                | IP 68   |
| Connection head                       | PP with M 20 x 1.5 cable entry, protection class IP 54; on request:<br>connection head made of cast aluminium, protection class IP 54<br>from the side                        |
| Mounting                              |   |
| Temperature application<br>range      | from 0°C to + 80°C<br>(inside the connection head: from 0°C to + 60°C)  |
| Pressure resistance/<br>test pressure | for pressureless applications (test pressure: max. 2 bar at + 20°C)   |
| <b>Application</b>                    | <b>only for use in liquids with a specific gravity <math>\geq 0.95 \text{ g/cm}^3</math></b>  |




**Mounting instructions see page 2-1-28**





# SM... float switches

- for mounting from the top
- with microswitch

| Types              | SM.../3   | SM.../1   |
|--------------------|---|---|
| Application        | for applications up to 250 V  | for light current applications  |
| Switching voltage  | between<br>AC/DC 24 V and<br>AC/DC 250 V  | between<br>AC/DC 1 V and<br>AC/DC 42 V  |
| Switching current  | between<br>AC 20 mA and<br>AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA   | between<br>AC 0.1 mA and<br>AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA    |
| Switching capacity | max. 1,000 VA   | max. 4 VA   |
| VDE marks licence  | <br>+<br> |  |

## Mode of operation

The rising or falling liquid level causes the float to move marginally up or down. When the float rises, it activates a microswitch in the form of a changeover switch.

**These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).**

The following types are available:

| Types               | All parts in contact with the liquid             | Pages                       |
|---------------------|--|-----------------------------|
| SMG/VE/.<br>SMV/E/. | stainless steel 316 Ti<br>stainless steel 316 Ti | 2-1-19<br>2-1-20 and 2-1-21 |



# SMG/VE/. float switches made of stainless steel



SMG/VE/.



SMG/VE/.  
with square flange  
made of stainless steel

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

| Technical data                        | SMG/VE/3  | SMG/VE/1  |
|---------------------------------------|---|---|
| Application                           | for applications up to 250 V  | for light current applications  |
| Switching voltage                     | between<br>AC/DC 24 V and AC/DC 250 V   | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current                     | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity                    | max. 1,000 VA   | max. 4 VA   |
| Operating principle                   | microswitch, changeover contact   |   |
| Recommended application               | —<br>via Jola KR .. protection relay<br>(see pages 12-0-0 and follow.)  |   |
| Bellows material                      | stainless steel 316 Ti  |   |
| Float material                        | stainless steel 316 Ti  |   |
| Float dimensions                      | cylindrical float 63 mm Ø x 140 mm long   |   |
| Screw-in nipple                       | stainless steel 316 Ti, G1  |   |
| <b>On request: flange</b>             | <b>square blind flange with G1 thread made of steel St 37 or stainless steel 316 Ti (dimensions see page 2-1-15) or other flanges with any desired dimensions</b>   |   |
| Float protection class                | IP 68   |   |
| Connection head                       | PP with M 20 x 1.5 cable entry, protection class IP 54; on request: connection head made of cast aluminium, protection class IP 54 from the top   |   |
| Mounting                              | —   |   |
| Temperature application range         | from 0°C to + 100°C<br>(inside the connection head: from 0°C to + 60°C);<br>on request, however <u>without</u><br>VDE marks licence:<br>from 0°C to + 250°C<br>(inside the connection head:<br>from 0°C to + 100°C) |   |
| Pressure resistance/<br>test pressure | for pressureless applications (test pressure: max. 2 bar at + 20°C);<br>on request: pressure resistance up to 4 bar at + 20°C /<br>g ≥ 1.0 g/cm <sup>3</sup> (test pressure: max. 6 bar at + 20°C)                  |   |
| <b>Application</b>                    | <b>only for use in liquids with a specific gravity ≥ 0.82 g/cm<sup>3</sup></b>  |   |

Further technical data on page 2-1-22

Mounting instructions see page 2-1-28



# SMV/E/. float switches made of stainless steel



**SMV/E/.**



**SMV/E/.**  
with function test button  
and  
guide tube for the float rod



# SMV/E/. float switches made of stainless steel

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

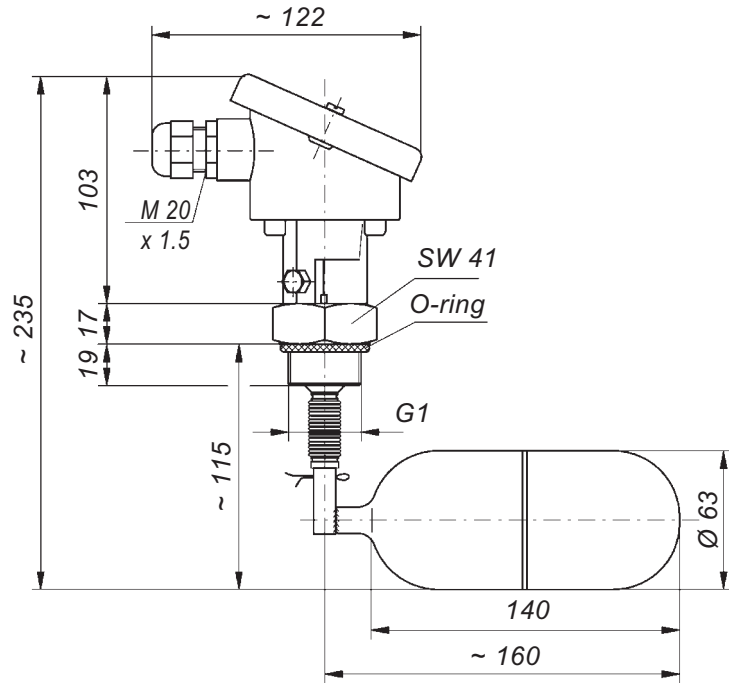
| Technical data  | SMV/E/3   | SMV/E/1   |
|---|---|---|
| Application   | for applications up to 250 V  | for light current applications  |
| Switching voltage   | between<br>AC/DC 24 V and AC/DC 250 V   | between<br>AC/DC 1 V and AC/DC 42 V   |
| Switching current   | between<br>AC 20 mA and AC 5 (1) A<br>or between<br>DC 20 mA and DC 100 mA  | between<br>AC 0.1 mA and AC 100 (50) mA<br>or between<br>DC 0.1 mA and DC 10 mA |
| Switching capacity  | max. 1,000 VA   | max. 4 VA   |
| Operating principle   | microswitch, changeover contact   |   |
| Recommended application   | —   | via Jola KR .. protection relay<br>(see pages 12-0-0 and follow.)               |
| All parts in contact with the liquid  | stainless steel 316 Ti, on request: Hastelloy C   |   |
| Float dimensions  | ball float 130 mm Ø; on request:<br>ball float 148 mm Ø, 180 mm Ø or 200 mm Ø and<br>special floats with other dimensions   |   |
| Length of the float rod less float (measured from sealing surface of screw-in nipple) | as desired, 200 mm if not otherwise specified;<br>guide tube for the float rod for rod length over 500 mm included<br>(for rod lengths under 500 mm on request)   |   |
| Screw-in nipple   | stainless steel 316 Ti, G1  |   |
| <b>On request: flange</b>   | <b>blind flange with any desired dimensions tapped with<br/>G1 thread</b>   |   |
| <b>On request:<br/>function test button</b>   | <b>to test the mechanical and electrical function<br/>of the float switch</b>   |   |
| Float protection class  | IP 68   |   |
| Connection head   | PP with M 20 x 1.5 cable entry, protection class IP 54; on request:<br>connection head made of cast aluminium, protection class IP 54   |   |
| Mounting  | from the top  |   |
| Temperature application range   | from 0°C to + 100°C<br>(inside the connection head: from 0°C to + 60°C);<br>on request, however <u>without</u><br>VDE marks licence:<br>from 0°C to + 250°C<br>(inside the connection head:<br>from 0°C to + 100°C) |   |
| Pressure resistance/<br>test pressure   | for pressureless applications (test pressure: max. 2 bar at + 20°C);<br>on request: pressure resistance up to 4 bar at + 20°C /<br>g ≥ 1.0 g/cm <sup>3</sup> (test pressure: max. 6 bar at + 20°C)                  |   |
| <b>Application</b>  | <b>for various liquids, depending on the length of the float rod<br/>and the type of float used –<br/>please contact us for information on different options</b>  |   |

Further technical data on page 2-1-22

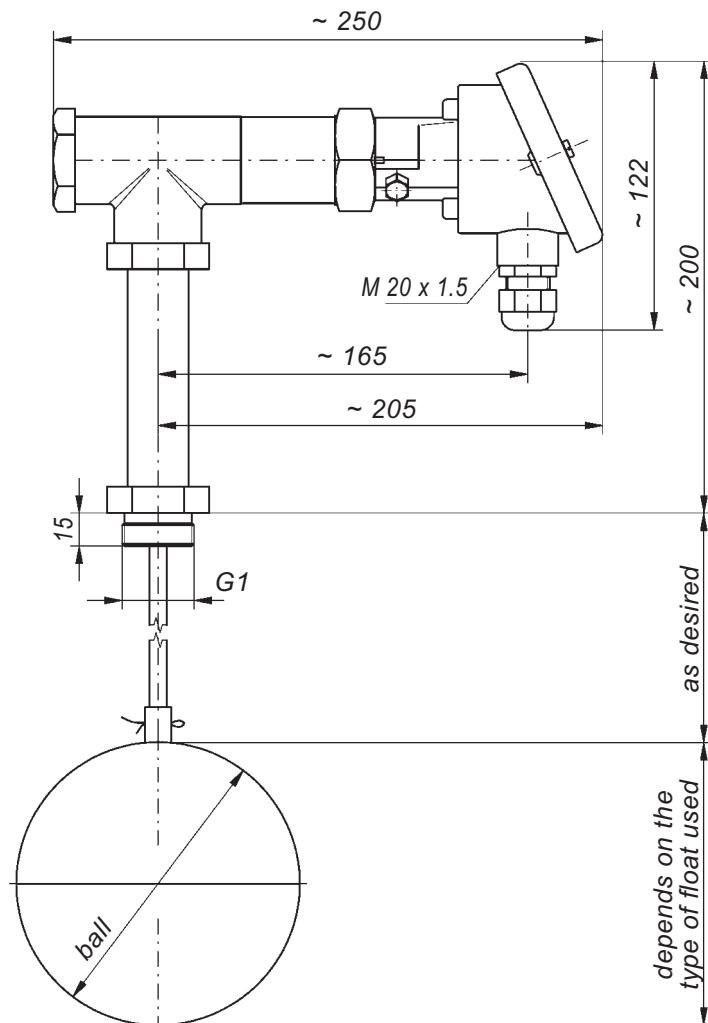
Mounting instructions see page 2-1-28

# Dimensional drawings

SMG/VE/.



SMV/E/.







# SM... float switches

- for mounting from the side or from the top
- with inductive proximity sensor instead of microswitch

All the types on pages 2-1-1 to 2-1-15 and 2-1-18 to 2-1-22 can be fitted with an inductive proximity sensor instead of a microswitch.



## Mode of operation

The rising or falling liquid level causes the float to move marginally up or down. When the float rises, it activates an inductive proximity sensor in the form of a make or break contact.

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

## Technical data

|                                 |  |
|---------------------------------|--|
| Supply voltage                  | DC 8.2 V ( $R_i \approx 1 \text{ k}\Omega$ )   |
| Change in current consumption   | $\Delta I = 1\text{--}3 \text{ mA}$  |
| Permissible ambient temperature | $-25^\circ\text{C}$ to $+60^\circ\text{C}$ ;<br>on request:<br>$-25^\circ\text{C}$ to $+100^\circ\text{C}$ |

## Type designation:

according to pages 2-1-. and additional designation

| Float position | Inductive proximity sensor | Relay     | Reference suffix |
|----------------|----------------------------|-----------|------------------|
| up             | $I \geq 3 \text{ mA}$      | attracts  | – N – up         |
| down           | $I \leq 1 \text{ mA}$      | falls off |                  |
| up             | $I \leq 1 \text{ mA}$      | falls off | – N – down       |
| down           | $I \geq 3 \text{ mA}$      | attracts  |                  |



# SM... float switches for pneumatic systems



**SMG/Pn**  
with square flange made of stainless steel



**SMV/Pn**

## Mode of operation

The rising or falling liquid level causes the float to move marginally up or down. When the float rises, it activates a pneumatic  $3/2$ -way valve.

**These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).**

**The following types are available:**

| Types  | All parts in contact with the liquid | Pages  |
|--------|--------------------------------------|--------|
| SMG/Pn | stainless steel 316 Ti               | 2-1-26 |
| SMV/Pn | stainless steel 316 Ti               | 2-1-27 |



# SMG/Pn float switch made of stainless steel



SMG/Pn with square flange made of stainless steel

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

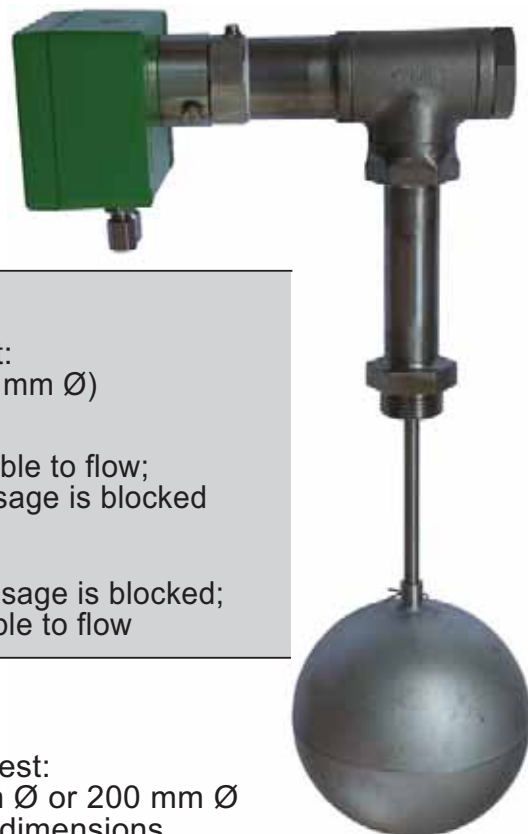
| Technical data                           | SMG/Pn  |
|--|---|
| Valve                                    | pneumatic $3/2$ -way valve  |
| Pressure range                           | 1.5 to max. 6 bar; on request:<br>0 to 12 bar (with ball float 180 mm Ø)  |
| Operation                                | <p><b>“UP” operation:</b><br/>float in “max. position”: air is able to flow;<br/>float in “min. position”: air passage is blocked</p> <p>on request:<br/><b>“DOWN” operation:</b><br/>float in “max. position”: air passage is blocked;<br/>float in “min. position”: air is able to flow</p> |
| Bellows material                         | stainless steel 316 Ti  |
| Float material                           | stainless steel 316 Ti  |
| Float dimensions                         | cylindrical float 63 mm Ø x 140 mm long   |
| On request:<br>extension piece for float | horizontal or vertical, as desired  |
| Screw-in nipple                          | stainless steel 316 Ti, G1  |
| <b>On request: flange</b>                | <b>square blind flange with G1 thread made of steel St 37 or stainless steel 316 Ti (dimensions see page 2-1-15) or other flanges with any desired dimensions</b>   |
| Float protection class                   | IP 68   |
| Terminal box                             | cast aluminium with protective coating,<br>approx. 125 x 80 x 58 mm, with 2 connections for air hoses DN 4  |
| Mounting                                 | from the side   |
| Temperature application<br>range         | from 0°C to + 60°C<br>(inside the terminal box: from 0°C to + 40°C)   |
| Pressure resistance/<br>test pressure    | for pressureless applications<br>(test pressure: max. 2 bar at + 20°C); on request:<br>pressure resistance up to 4 bar at + 20°C / $\rho \geq 1.0 \text{ g/cm}^3$<br>(test pressure: max. 6 bar at + 20°C)  |
| <b>Application</b>                       | <b>for various liquids, depending on the pressure of the valve - please contact us for information on different options</b>   |

Mounting instructions see page 2-1-28



# SMV/Pn float switch made of stainless steel

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).



| Technical data  | SMV/Pn  |
|---|---|
| Valve   | pneumatic $3/2$ -way valve  |
| Pressure range  | 1.5 to max. 6 bar; on request:<br>0 to 12 bar (with ball float 200 mm Ø)  |
| Operation   | <p><b>“UP” operation:</b><br/>float in “max. position”: air is able to flow;<br/>float in “min. position”: air passage is blocked</p> <p>on request:<br/><b>“DOWN” operation:</b><br/>float in “max. position”: air passage is blocked;<br/>float in “min. position”: air is able to flow</p> |
| All parts in contact with the liquid  | stainless steel 316 Ti  |
| Float dimensions  | ball float 130 mm Ø; on request:<br>ball float 148 mm Ø, 180 mm Ø or 200 mm Ø<br>and special floats with other dimensions   |
| Length of the float rod less float (measured from sealing surface of screw-in nipple) | as desired; 200 mm if not otherwise specified;<br>guide tube for the float rod for rod length over 500 mm included (for rod lengths under 500 mm on request)  |
| Screw-in nipple   | stainless steel 316 Ti, G1  |
| <b>On request:<br/>flange</b>   | <b>blind flange with any desired dimensions tapped with G1 thread</b>   |
| Float protection class  | IP 68   |
| Terminal box  | cast aluminium with protective coating,<br>approx. 125 x 80 x 58 mm, with 2 connections for air hoses DN 4  |
| Mounting  | from the top  |
| Temperature application range   | from 0°C to + 60°C<br>(inside the terminal box: from 0°C to + 40°C)   |
| Pressure resistance/<br>test pressure   | for pressureless applications<br>(test pressure: max. 2 bar at + 20°C); on request:<br>pressure resistance up to 4 bar at + 20°C /<br>$g \geq 1.0 \text{ g/cm}^3$ (test pressure: max. 6 bar at + 20°C)   |
| <b>Application</b>  | <b>for various liquids, depending on the length of the float rod, the type of float used and the pressure at the valve - please contact us for information on different options</b>   |

Mounting instructions see page 2-1-28

# Mounting instructions:

## **SM/P/. and SM/E/. float switches:**

These float switches must be mounted **horizontally**.

- screw the float switch with its seal into the G1 tank socket or flange borehole,
- seal in place,
- loose the two cheese head screws on the side – but do not remove –,
- set the connection head in such a way that the label “TOP” is at the top and the cable entry at the bottom,
- retighten the two cheese head screws.

## **SMG/P/. and SMG/PVDF/. float switches:**

These float switches must be mounted **horizontally**.

- unscrew the float,
- screw the float switch with its seal into the G1 tank socket or flange borehole,
- seal in place,
- loose the two cheese head screws on the side – but do not remove –,
- set the connection head in such a way that the label “TOP” is at the top and the cable entry at the bottom,
- retighten the two cheese head screws,
- screw back in place the float.

## **SMK/E./, SMG/E./, SMH/E/. and SMG/Pn float switches:**

These float switches must be mounted **horizontally**.

- remove the pin,
- unscrew the float,
- screw the float switch with its seal into the G1 tank socket or flange borehole,
- seal in place,
- loose the two cheese head screws on the side – but do not remove –,
- set the connection head in such a way that the label “TOP” is at the top and the cable entry at the bottom,
- retighten the two cheese head screws,
- screw back in place the float,
- secure the float using the pin.

## **SM/PTFE./, SMG/A/P/. and SMG/A/E/. float switches:**

These float switches must be mounted **horizontally**.

- seal and mount the float switch in the corresponding counter-flange,
- loose the two cheese head screws on the side – but do not remove –,
- set the connection head in such a way that the label “TOP” is at the top and the cable entry at the bottom,
- retighten the two cheese head screws.

## **SMG/E -D- float switch:**

This float switch must be mounted **horizontally**.

- remove the pin,
- unscrew the float together with its stirrup,
- screw the float switch with its seal into the G1 tank socket or flange borehole and seal in place so that the connection head is set in such a way that the label “TOP” is at the top and the cable entry at the bottom,
- screw back in place the float together with its stirrup,
- secure using the pin.

## **SMG/VE./, SMV/E/. and SMV/Pn float switches:**

These float switches must be mounted **vertically**.

- remove the pin,
- unscrew the float,
- screw the float switch with its seal into the G1 tank socket or flange borehole,
- seal in place,
- screw back in place the float,
- secure the float using the pin.

**The units described in this documentation  
may only be installed, connected and  
started up by suitably qualified personnel!**

**Subject to deviations from the diagrams  
and technical data.**

**The details in this brochure are product  
specification descriptions and do not  
constitute assured properties in the legal  
sense.**