

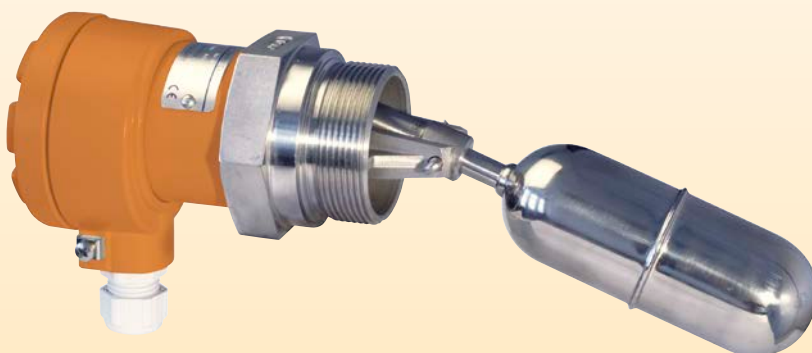


Dual-Magnet Float Switch



measuring
•
monitoring
•
analysing

NGS



- Pressure: up to 25 bar
- Medium temperature: up to 250 °C
- Density: >0.7 kg/dm³
- High switch capacity
- Connection: square flange, DIN flange, BSP, NPT
- Material: stainless steel 1.4571
- ATEX approval (optional)



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Method of Operation

As the level rises and falls the inclination of the float is changed causing a permanent magnet in the float to be deflected which in turn repels a rotatable opposing magnet. This forced snap-action-contact effect operates a microswitch with a plunger. Even very small changes in level can be detected in this way.

Special Advantages

- Secure and wear-free sensitive switching by repelling magnets
- High switch capacity up to 10 A with microswitch
- Very rugged for tough environments
- No regular maintenance necessary
- Medium temperature up to 250 °C
- Wetted parts made of high-quality stainless steel
- No auxiliary power necessary

Application

Control and monitoring liquid levels in open and closed vessels, especially:

- Min. or Max. monitoring of liquid levels
- Monitoring and controlling a continuous liquid level
- When only side installation is possible due to lack of space or considerations of cost
- When a very rugged monitoring device is needed for tough environments

Technical Details

NGS-_1, horizontal mounting, fixed differential

Nominal pressure: 25 bar
 Installation position: from side
 Differential: fixed, see diagram

NGS-_2, horizontal mounting, adjustable differential

Nominal pressure: 25 bar
 Installation position: from side
 Differential: adjustable

NGS-23, top mounting, adjustable differential

Nominal pressure: 16 bar
 Installation position: from above
 Differential: adjustable

General

Medium temperature:

| Model | Medium temperature |
|-------|--------------------|
| NGS-2 | -40...+250 °C |
| NGS-4 | -20...+80 °C |
| NGS-5 | 0...+100 °C |
| NGS-6 | 0...+200 °C |
| NGS-7 | 0...+80 °C |
| NGS-8 | 0...+80 °C |

(See temperature diagram for EX version on next page)

Ambient temperature: -20 °C...+80 °C (EX version, see table below)

Min. medium density: >0.7 kg/dm³ (see density table below)

Wetted parts: stainless steel 1.4571 (NGS-5...: rubber, NGS-6...: silicone rubber)

Housing material: aluminium, colour coated

Flat gasket: Klingertit

Process connection: square flange, DIN flange, 2" BSP or NPT

Switching element: 1 microswitch with 1 closing and 1 opening contact (NO and NC)

Switch rating: 250 V_{AC}, 10 A, 220 V_{DC}, 0.6 A
 Ex: 250 V_{AC}/2.5 A; 220 V_{DC}/0.3 A

Electrical connection: M20x1,5 for NGS-2, NGS-5, NGS-6
 integrated cable for NGS-4, NGS-7, NGS-8

Protection: standard version: NGS-2, NGS-5, NGS-6: IP 65
 submersible version: NGS-4, NGS-7, NGS-8: IP 68 (max. 20 m WC)

Weight: approx. 2.5 kg

ATEX approval: II 1/2 G Ex de mb IIC T6...T2 Ga/Gb

Density table

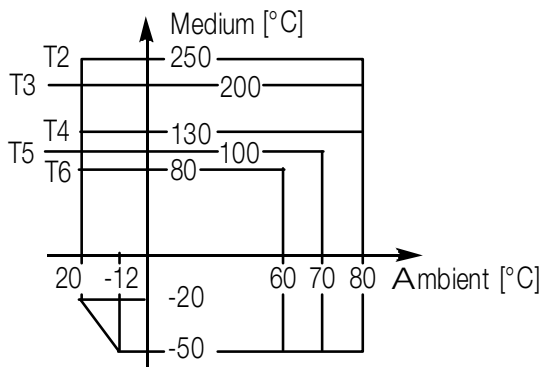
| Minimum liquid density (kg/dm ³) | | | | |
|--|---------|-----|------|-------------|
| Arm length [mm] | 0...100 | 200 | 300 | 1000...3000 |
| Float [mm] | | | | |
| 52 | 0.7 | 0.8 | 0.85 | - |
| 64 | 0.7 | 0.8 | 0.8 | - |
| 124 | - | - | - | 0.7 |



Temperature diagram for ATEX version

| Class | T6 | T5 | T4 | T3 | T2 |
|--------------------------|----------------|----------------|----------------|----------------|----------------|
| Max. process temperature | 80 °C | 95 °C | 130 °C | 200 °C | 250 °C |
| Ambient temperature | -20 ... +60 °C | -20 ... +70 °C | -20 ... +80 °C | -20 ... +80 °C | -20 ... +80 °C |

Except: NGS-51 $T_{\text{medium}}: 0 \dots +100 \text{ °C}$
 NGS-61 $T_{\text{medium}}: 0 \dots +200 \text{ °C}$



The applicable medium temperature range limited by this diagram.



Order Details (Example: NGS-2 1 0 0)

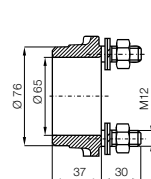
| Model | Version | Switch hysteresis/characteristics | Process connection | Arm length | Certification |
|-------|--|-----------------------------------|---|---|-----------------------------|
| NGS- | 2 = standard, side or top mounting 4 ¹⁾ = submersible, side or top mounting 5 = standard with rubber protection sleeve, side or top mounting 6 = standard with silicone protection rubber sleeve, side or top mounting 7 ¹⁾ = submersible with rubber protection sleeve, side or top mounting 8 ¹⁾ = submersible with silicone protection sleeve, side or top mounting | 1 = fix | 0 = 92 mm square flange PN 25 B ²⁾ = BSP 2" N ²⁾ = 2" NPT 1 ⁴⁾ = flange DN80, PN40, carbon steel 2 ⁴⁾ = flange DN 100, PN40, carbon steel 5 ⁴⁾ = flange DN80, PN40, st. steel 1.4571 6 ⁴⁾ = flange DN 100, PN40, st. steel 1.4571 | 0 = 0 mm 5 = 100 mm 6 = 200 mm 7 = 300 mm 8 ³⁾ = L- or Z-arm | without = none Ex = ATEX |
| | 2 = standard, side mounting 4 ¹⁾ = submersible, side mounting | 2 = adjustable (side mounting) | 0 = 92 mm square flange PN 25 1 ⁴⁾ = flange DN80, PN40, carbon steel 2 ⁴⁾ = flange DN 100, PN40, carbon steel 5 ⁴⁾ = flange DN80, PN40, st. steel 1.4571 6 ⁴⁾ = flange DN 100, PN40, st. steel 1.4571 | 0 = 0 mm 5 = 100 mm 6 = 200 mm 7 = 300 mm | |
| | 2 = standard, mounting from top only | 3 = adjustable (top mounting) | 0 = 92 mm square flange PN 25 | 5 = 1000 mm 6 = 2000 mm 7 = 3000 mm | |

¹⁾ Please mention cable length in clear text
²⁾ Only for NGS-21 and NGS-41
³⁾ Please mention switching point in clear text
⁴⁾ Only for NGS-21, NGS-22 and NGS-4

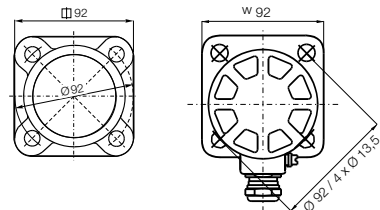
Accessory: Counter Flange

| Model | Material |
|----------|------------------------------|
| NGS-MFF1 | Counter flange, steel 1.7218 |
| NGS-MFF2 | Stainless steel 1.4404 |

Counter flange NGS-MFF_

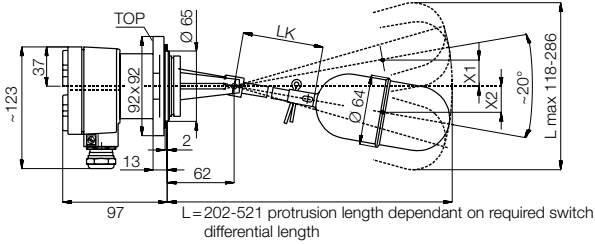


Square flange



Dimensions [mm]

Fixed switch hysteresis, side installation

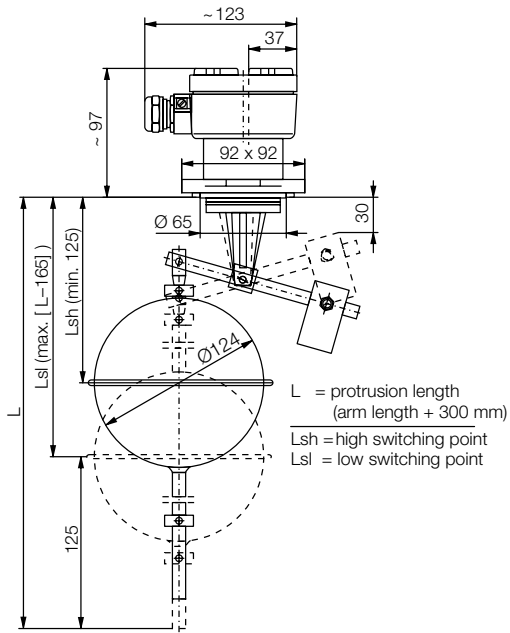


Switching data model NGS-21...

| | | | | |
|--------------------------------|-----|-----|-----|-----|
| LK = linkage length | 0 | 100 | 200 | 300 |
| L = protrusion length | 202 | 321 | 421 | 521 |
| L _{max} = total swing | 118 | 180 | 234 | 286 |
| X1 = high switch point | 12 | 30 | 46 | 62 |
| X2 = low switch point | 12 | 30 | 46 | 62 |

Note: The data apply to water at 20 °C, tolerance ±5 mm

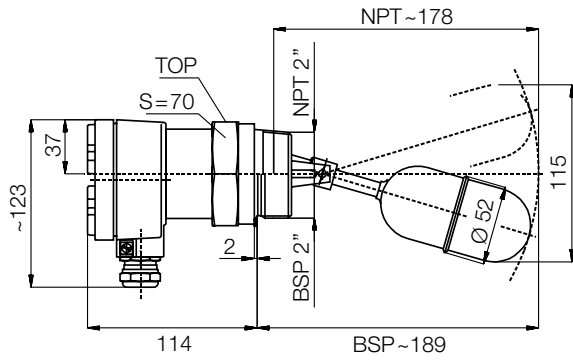
Adjustable hysteresis, installation from above (NGS-23)



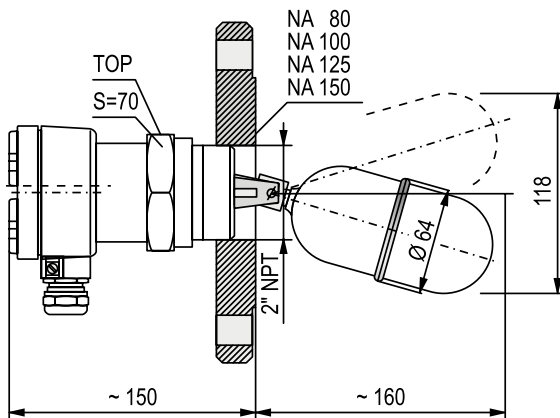
The hysteresis can be adjusted by positioning the rings on the rod. By positioning the counterweight the different rod lengths can be compensated.

Dimensions [mm] (continued)

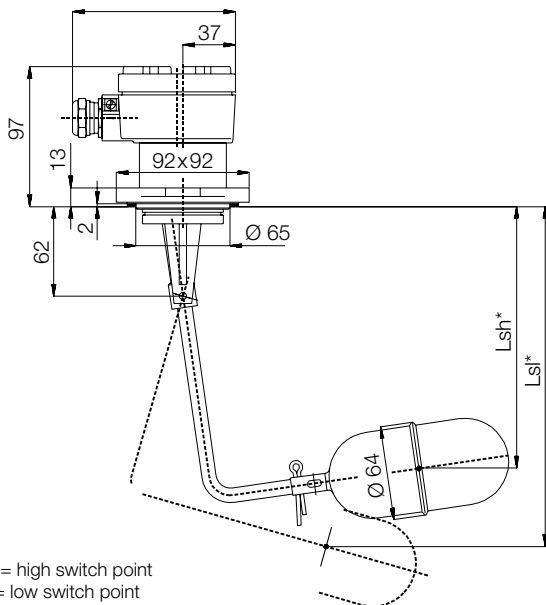
Process connection: threaded



Process connection: flanged



L-arm, installation from above

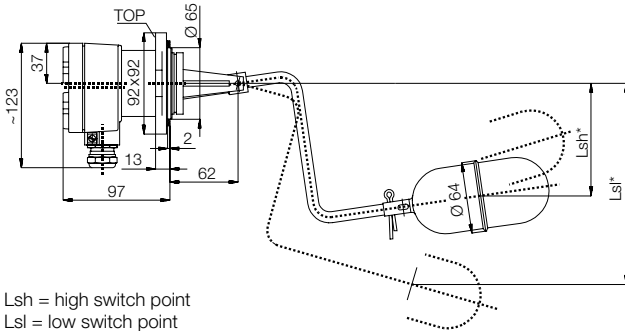


Lsh = high switch point
Lsl = low switch point
* Only one value can be specified



Dimensions [mm] (continued)

Z-arm, side installation

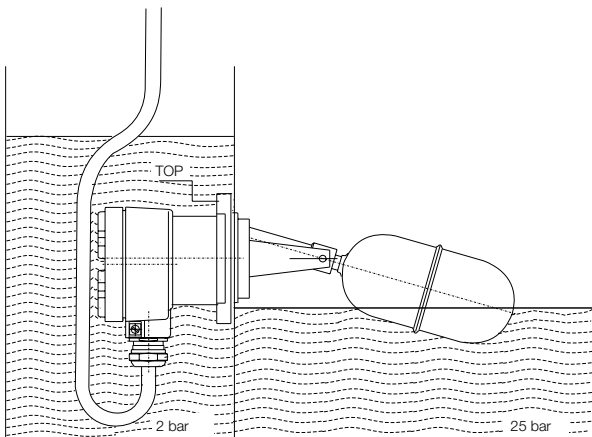


Lsh = high switch point
Lsl = low switch point

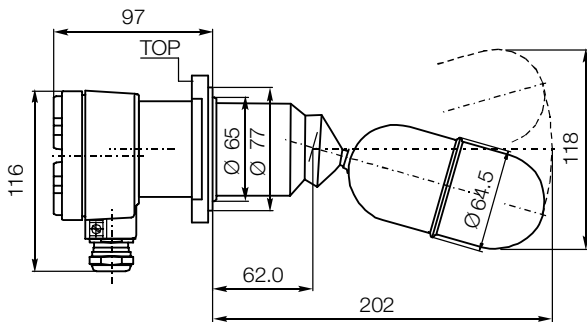
* Only one value can be specified



Submersible version (NGS-41)

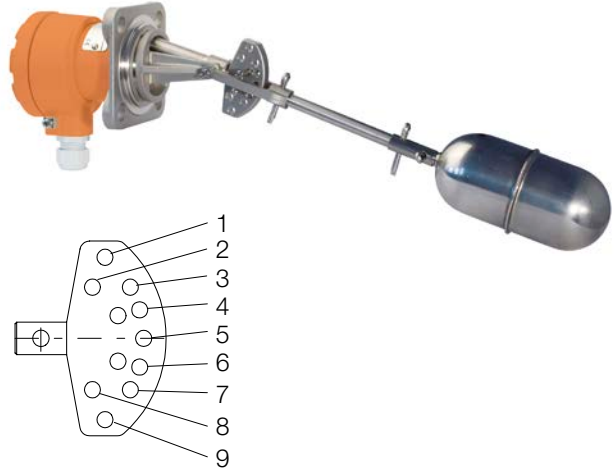
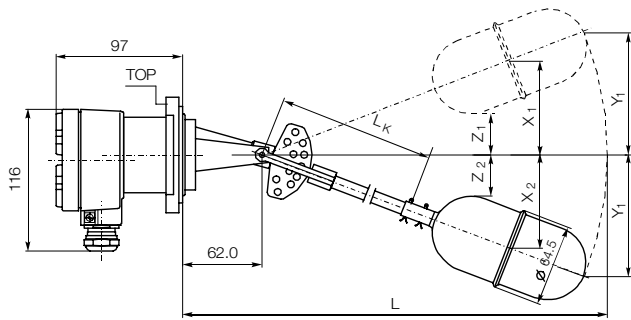


Fixed switch hysteresis, with protection sleeve



Dimensions [mm] (continued)

Adjustable switch hysteresis, side installation (NGS-22)



| NGS-2200 NGS-2200Ex | | | | | | NGS-2205 NGS-2205Ex | | | | | NGS-2206 NGS-2206Ex | | | | | NGS-2207 NGS-2207Ex | | | | |
|------------------------|-----|-----|---------|---------|---------|------------------------|------|---------|---------|---------|------------------------|------|---------|---------|---------|------------------------|------|---------|---------|---------|
| $L_k = 0$ | | | | | | $L_k = 100$ | | | | | $L_k = 200$ | | | | | $L_k = 300$ | | | | |
| $L = 268$ | | | | | | $L = 350$ | | | | | $L = 450$ | | | | | $L = 550$ | | | | |
| Pos. | X1 | X2 | Diff. S | Y1 (Z1) | Y2 (Z2) | X1 | X2 | Diff. S | Y1 (Z2) | Y2 (Z2) | X1 | X2 | Diff. S | Y1 (Z3) | Y2 (Z2) | X1 | X2 | Diff. S | Y1 (Z4) | Y2 (Z2) |
| 1-4 | +87 | +20 | 67 | 131 | (13) | +129 | +30 | 99 | 194 | (19) | +171 | +40 | 131 | 256 | (25) | 213 | +50 | 163 | 319 | (51) |
| 1-5 | +87 | +12 | 75 | 131 | 44 | +129 | +18 | 111 | 194 | 87 | +171 | +24 | 147 | 256 | 36 | 213 | +30 | 183 | 319 | 45 |
| 1-6 | +87 | -20 | 97 | 131 | 53 | +129 | -30 | 159 | 194 | 44 | +171 | -40 | 201 | 256 | 58 | 213 | -50 | 263 | 319 | 72 |
| 1-7 | +87 | -42 | 129 | 131 | 84 | +129 | -62 | 191 | 194 | 92 | +171 | -82 | 253 | 256 | 121 | 213 | -102 | 315 | 319 | 151 |
| 1-8 | +87 | -65 | 152 | 131 | 123 | +129 | -96 | 225 | 194 | 142 | +171 | -127 | 298 | 256 | 187 | 213 | -158 | 371 | 319 | 233 |
| 1-9 | +87 | -89 | 176 | 131 | 131 | +129 | -132 | 261 | 194 | 194 | +171 | -175 | 316 | 256 | 256 | 213 | -218 | 431 | 319 | 319 |
| 2-5 | +80 | +12 | 68 | 123 | 44 | +118 | +18 | 100 | 182 | 27 | +156 | +24 | 132 | 240 | 36 | 194 | +30 | 164 | 299 | 45 |
| 2-6 | +80 | -20 | 100 | 123 | 53 | +118 | -30 | 148 | 182 | 44 | +156 | -40 | 196 | 240 | 58 | 194 | -50 | 244 | 299 | 72 |
| 2-7 | +80 | -42 | 122 | 123 | 84 | +118 | -62 | 180 | 182 | 92 | +156 | -82 | 238 | 240 | 121 | 194 | -102 | 296 | 299 | 151 |
| 2-8 | +80 | -65 | 145 | 123 | 123 | +118 | -96 | 214 | 182 | 142 | +156 | +127 | 283 | 240 | 187 | 194 | -158 | 352 | 299 | 233 |
| 2-9 | +80 | -89 | 169 | 123 | 131 | +118 | -132 | 250 | 182 | 194 | +156 | -175 | 339 | 240 | 256 | 194 | -218 | 402 | 299 | 319 |
| 3-5 | +47 | +12 | 35 | 84 | 44 | +70 | +18 | 52 | 104 | 27 | +93 | +24 | 69 | 137 | 36 | +116 | +30 | 86 | 171 | 45 |
| 3-6 | +47 | -20 | 67 | 84 | 53 | +70 | -30 | 100 | 104 | 44 | +93 | -40 | 133 | 137 | 58 | +116 | -50 | 66 | 171 | 72 |
| 3-7 | +47 | -42 | 89 | 84 | 84 | +70 | -62 | 132 | 104 | 92 | +93 | -82 | 175 | 137 | 121 | +116 | -102 | 218 | 171 | 151 |
| 3-8 | +47 | -65 | 112 | 84 | 123 | +70 | -96 | 166 | 104 | 142 | +93 | -127 | 220 | 137 | 187 | +116 | -158 | 274 | 171 | 233 |
| 3-9 | +47 | -83 | 136 | 84 | 131 | +70 | -132 | 201 | 104 | 194 | +93 | -175 | 268 | 137 | 256 | +116 | -218 | 334 | 171 | 319 |
| 4-6 | +20 | -20 | 40 | 53 | 53 | +30 | -30 | 60 | 78 | 44 | +40 | -40 | 80 | 103 | 58 | +50 | -50 | 100 | 128 | 72 |
| 4-7 | +20 | -42 | 62 | 53 | 84 | +30 | -62 | 92 | 78 | 92 | +40 | -82 | 122 | 103 | 121 | +50 | -102 | 152 | 128 | 151 |
| 4-8 | +20 | -65 | 85 | 53 | 123 | +30 | -96 | 126 | 78 | 142 | +40 | -127 | 167 | 103 | 187 | +50 | -158 | 208 | 128 | 233 |
| 4-9 | +20 | -89 | 109 | 53 | 131 | +30 | -132 | 162 | 78 | 194 | +40 | -175 | 215 | 103 | 256 | +50 | -218 | 268 | 128 | 319 |
| 5-7 | -12 | -42 | 30 | 44 | 84 | -18 | -62 | 44 | 65 | 92 | -24 | -82 | 106 | 86 | 121 | -30 | -102 | 72 | 107 | 151 |
| 5-8 | -12 | -65 | 53 | 44 | 123 | -18 | -96 | 78 | 65 | 142 | -24 | -127 | 151 | 86 | 187 | -30 | -158 | 128 | 107 | 233 |
| 5-9 | -12 | -89 | 72 | 44 | 131 | -18 | -132 | 115 | 65 | 194 | -24 | -175 | 189 | 86 | 256 | -30 | -218 | 188 | 107 | 319 |
| 6-9 | -20 | -89 | 69 | 13 | 131 | -30 | -132 | 102 | 13 | 194 | -40 | -175 | 215 | 23 | 256 | -50 | -218 | 168 | 31 | 319 |