

# NIVOFLIP

BYPASS LIQUID LEVEL INDICATORS



5 YEARS WARRANTY

# NIVELCO

LEVEL TRANSMITTERS

**NIVOFLIP** is a bypass level indicator for pressurized vessels with up to 5.5 m (~18 ft) flange distance containing liquids. The device has the international PED (*Pressure Equipment Directive*) approval, so it can be used for level indication of pressurized vessels up to 100 bar (1450 psi) process pressure.

The High-temperature types are applicable up to +250 °C (+482 °F) process temperature. **NIVOFLIP** can be equipped with optional limit switches or with NIVELCO's **NIVOTRACK** high-precision magnetostrictive level transmitter if level transmission is needed.

## FEATURES

- Clearly visible display
- Measuring range: 500...5500 mm (19.7...216.5")
- ±10 mm (±0.39") accuracy
- Max. 100 bar (1450 psi) process pressure
- High-temperature version
- Optional level switches
- Optional magnetostrictive level transmitter
- Explosion-proof version

## APPLICATIONS

- Oil and gas industries
- Chemical industry
- Power generation
- Boilers
- Pressurized vessels
- Tanks

## CERTIFICATES

- PED certificate
- ATEX (Ex d e m Gb): MAK-100 level switches
- ATEX (Ex h Ga/Gb): ML-100 bypass level indicator

NIVOFLIP ML□-100

+ MAK-100

+ NIVOTRACK M□L-500 / 600

## FLOAT SELECTION

|                                   | Float material                |                                |                               |                              |                              |
|-----------------------------------|-------------------------------|--------------------------------|-------------------------------|------------------------------|------------------------------|
|                                   | Stainless steel               |                                | Titán Ti Gr.2                 |                              |                              |
| Highest process pressure          | 40 bar (580 psi)              | 63 bar (930 psi)               | 40 bar (580 psi)              | 63 bar (930 psi)             | 100 bar (1450 psi)           |
| Medium-density (Specific gravity) | 0.8...1.25 kg/dm <sup>3</sup> | 0.85...1.25 kg/dm <sup>3</sup> | 0.55...1.1 kg/dm <sup>3</sup> | 0.6...1.1 kg/dm <sup>3</sup> | 0.7...1.1 kg/dm <sup>3</sup> |
| Highest process temperature       | +250 °C (+482 °F)             |                                |                               |                              |                              |

## OPERATION

The fluid level in the bypass chamber is the same as in the tank. The welded bypass chamber and the tank form one pressurized system, so the float containing a magnet rises and descends with the fluid level. The properly polarized magnet in the float topples the two-toned plates with the colored magnetic caps through the stainless steel tube's wall, indicating the fluid level. The plates with different color codes on the 100 mm (3.94") under the lower stem provide a visual error message when fluid levels drop below the instrument's lower connecting point.

## NIVOFLIP LEVEL INDICATING SYSTEM

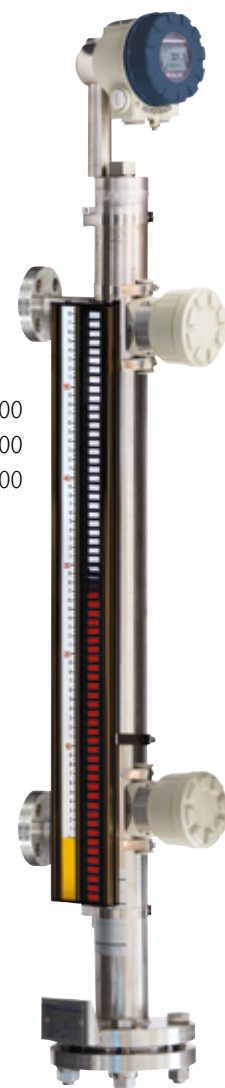
NIVOFLIP bypass liquid level indicator can be equipped with positionable MAK-100-□ external level switches to provide level limit switching. For MAK-100 level switches, the minimal liquid density should exceed the default value specified in the datasheet by 0.1 kg/dm<sup>3</sup>.

For jobs requiring more accuracy than that of the magnetic flaps, high-precision **NIVOTRACK M-500** magnetostrictive level transmitters are recommended to use. Equipped with OIML R 85 certified **NIVOTRACK**, the measurement system is suitable for custody transfer measurements. The floatless rigid probe magnetostrictive transmitter can be mounted externally to the bypass chamber with clamps.

All optional units are operated via magnetic coupling, there is no direct contact with the measured material.

## PROPERTIES

|                                              | Standard version | High-temperature version |
|----------------------------------------------|------------------|--------------------------|
| Stainless steel float                        | ■                | ■                        |
| Titanium float                               | ■                | ■                        |
| PED certificate                              | ■                | ■                        |
| Maximum 100 bar (1450 psi) medium pressure   | ■                | —                        |
| Maximum +250 °C (+482 °F) medium temperature | —                | ■                        |
| Optional level switch                        | ■                | ■                        |
| Optional level transmitter                   | ■                | ■                        |



## TECHNICAL DATA

| Features                           |                  | Standard version                                                                                                                                                                                                                                                        | High-temperature version      |
|------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Display type                       |                  | Two-toned magnetic flaps                                                                                                                                                                                                                                                |                               |
| Display                            | scale            | cm / inch                                                                                                                                                                                                                                                               |                               |
|                                    | accuracy         | ±10 mm (±0.4")                                                                                                                                                                                                                                                          |                               |
|                                    | resolution       | 5 mm (0.2")                                                                                                                                                                                                                                                             |                               |
|                                    | error indication | Lower 100 mm (~4"), inverse polarized flaps                                                                                                                                                                                                                             |                               |
| Tube diameter                      |                  | Ø60.3 mm (Ø2.35")                                                                                                                                                                                                                                                       |                               |
| Flange distance (center to center) |                  | 500...5500 mm (19.7...216.5") (as per order code)                                                                                                                                                                                                                       |                               |
| Process connection                 |                  | DIN, ANSI flanges (as per order code)                                                                                                                                                                                                                                   |                               |
| Vent connection                    |                  | M20×1.5                                                                                                                                                                                                                                                                 |                               |
| Process pressure                   |                  | Max. 100 bar (1450 psi)                                                                                                                                                                                                                                                 | Max. 88 bar (1276 psi)        |
| Medium temperature                 |                  | −60...+130 °C (−76...+266 °F)                                                                                                                                                                                                                                           | −60...+250 °C (−76...+482 °F) |
| Ambient temperature                |                  | −60...+60 °C (−76...+140 °F)                                                                                                                                                                                                                                            |                               |
| PED (2014/68/EU) certificate       |                  | Category I-III, Module B+C2                                                                                                                                                                                                                                             |                               |
| Min. medium density <sup>(1)</sup> |                  | With stainless steel float 40 bar (580 psi): 0.8 kg/dm <sup>3</sup> , 63 bar (930 psi): 0.85 kg/dm <sup>3</sup> ; with Titanium float 40 bar (580 psi): 0.55 kg/dm <sup>3</sup> , 63 bar (930 psi): 0.6 kg/dm <sup>3</sup> , 100 bar (1450 psi): 0.7 kg/dm <sup>3</sup> |                               |
| Level switch                       |                  | Optional, freely adjustable MAK-100 level switch <sup>(2)</sup>                                                                                                                                                                                                         |                               |
| Level transmitter                  |                  | Optional NIVOTRACK M□L-500 / -600 / -700 magnetostrictive level transmitter <sup>(2)</sup>                                                                                                                                                                              |                               |
| Weight                             |                  | About 25 kg (~55 lb) for 1 m (3.3 ft) center to center distance                                                                                                                                                                                                         |                               |

<sup>(1)</sup> With MAK-100 level switches, the minimal medium density should exceed the default value by 0.1 kg/dm<sup>3</sup>.

<sup>(2)</sup> For NIVOTRACK level transmitters and MAK-100 level switches, the highest temperature values are shown in the diagram below.

## Ex INFORMATION

|                  |                         |                                               |
|------------------|-------------------------|-----------------------------------------------|
| ATEX certificate | M□-□□□-□Ex, MH□-□□□-□Ex | Ex marking: Ⓔ II 1/2 G Ex h IIC T6...T2 Ga/Gb |
|------------------|-------------------------|-----------------------------------------------|

| Temperature data for Ex certified models | Hazardous gas atmospheres |                  |                                 |                   |
|------------------------------------------|---------------------------|------------------|---------------------------------|-------------------|
|                                          | Standard<br>M□-□□□-□Ex    |                  | High-temperature<br>MH□-□□□-□Ex |                   |
| Highest permissible medium temperature   | +80 °C (+176 °F)          | +95 °C (+203 °F) | +130 °C (+266 °F)               | +250 °C (+482 °F) |
| Highest permissible ambient temperature  | +60 °C (+140 °F)          |                  |                                 |                   |
| Highest resulting surface temperature    | +80 °C (+176 °F)          | +95 °C (+203 °F) | +130 °C (+266 °F)               | +250 °C (+482 °F) |
| Temperature class                        | T6                        | T5               | T4                              | T2                |

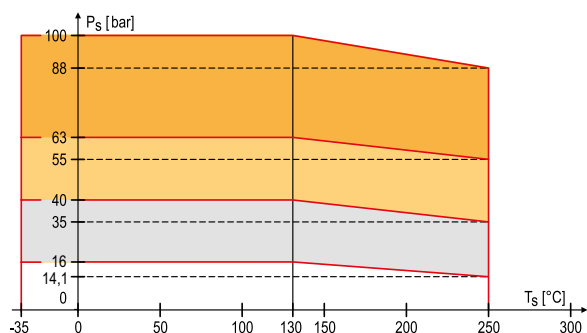
Lowest permissible ambient and medium temperature: −60 °C (−76 °F)

| Highest process pressure   |                             | Highest process temperature        |                          |
|----------------------------|-----------------------------|------------------------------------|--------------------------|
| Process connection         | Bypass tube / Flange rating | T <sub>MAX</sub> = 130 °C (266 °F) |                          |
|                            |                             | Standard version                   | High-temperature version |
|                            |                             | Maximum process pressure           |                          |
| DIN flanges<br>DN15...DN50 | Ø60 mm / PN16               | 16 bar                             | 14.1 bar                 |
|                            | Ø60 mm / PN40               | 40 bar                             | 35 bar                   |
|                            | Ø60 mm / PN63               | 63 bar                             | 55 bar                   |
|                            | Ø60 mm / PN100              | 100 bar*                           | 88 bar*                  |
| ANSI flanges<br>½...2"     | Ø60 mm / 150 Class          | 232 psi                            | 204 psi                  |
|                            | Ø60 mm / 400 Class          | 580 psi                            | 500 psi                  |
|                            | Ø60 mm / 600 Class          | 930 psi                            | 800 psi                  |
|                            | Ø60 mm / 900 Class          | 1440 psi*                          | 1275 psi*                |

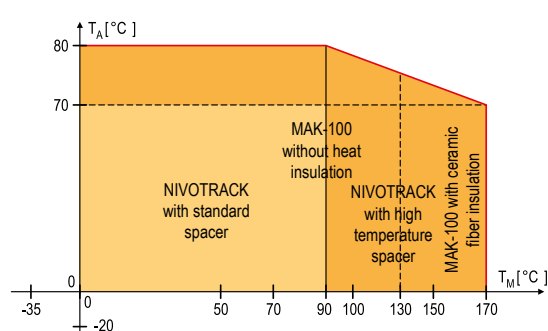
\*Only with Titanium float

## TEMPERATURE DIAGRAM

### Temperature (T<sub>S</sub>) – Pressure (P<sub>S</sub>) diagram



### Medium temperature (T<sub>M</sub>) – Ambient temperature (T<sub>A</sub>) diagram when NIVOTRACK level transmitter or MAK-100 level switch is mounted on NIVOFLIP





**NIVOFLIP ML-100  
+ NIVOTRACK M-500**  
application in beverage industry

## MAK-100 – MAGNETIC LEVEL SWITCHES

The **MAK-100** type magnetic level switches are optional accessories for **NIVOFLIP** bypass level indicators. The float in the stainless steel bypass tube follows the level of the measured liquid. The float (*permanent magnet*) operates the positionable **MAK-100** level switch via magnetic coupling and provides a non-contact signal transfer to the switch. There should be at least 100 mm (~4") distance between two switching points.

### TECHNICAL DATA

|                                | MAK-100-0                                                                                | MAK-100-7                                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Medium temperature             | Maximum +130°C (+266 °F)                                                                 | See temperature classes table                                                                                      |
| Ambient temperature            | -20...+80 °C (-4...+176 °F)                                                              |                                                                                                                    |
| Material of the switch housing | Powder-coated aluminum                                                                   |                                                                                                                    |
| Switch                         | 1 microswitch, with NO, NC contacts                                                      |                                                                                                                    |
| Switching data                 | 250 V 2.5 A AC12, 220 V 0.3 A DC13                                                       |                                                                                                                    |
| Switching hysteresis           | ±35 mm (±1.37")                                                                          |                                                                                                                    |
| Electrical connection          | M20×1.5 cable gland,<br>terminal for max. 2.5 mm <sup>2</sup> (AWG14) wire cross-section |                                                                                                                    |
| Ingress protection             | IP65                                                                                     |                                                                                                                    |
| Electrical protection          | Class I                                                                                  |                                                                                                                    |
| Ex marking                     | -                                                                                        |  II 2 G Ex db eb mb IIC T6...T4 |
| Weight                         | 1.5 kg (3.3 lb)                                                                          |                                                                                                                    |



### TEMPERATURE DATA FOR Ex CERTIFIED MODELS

| Temperature classes |                         |                              |
|---------------------|-------------------------|------------------------------|
| Class               | Max. medium temperature | Ambient temperature          |
| T6                  | +80 °C (+176 °F)        | -20...+60 °C (-4...+140 °F)  |
| T5                  | +95 °C (+203 °F)        | -20...+70 °C (-4...+158 °F)  |
| T4                  | +130 °C (+266 °F)       | -20...+80 °C (-4 ...+176 °F) |

## NIVOTRACK – MAGNETOSTRICTIVE LEVEL TRANSMITTERS

**NIVOTRACK** magnetostrictive level transmitters are an ideal solution for high-accuracy measurement of liquids. Its high precision – 0.1 mm or 1 mm (0.004" or 0.04") resolution – renders the **NIVOTRACK** suitable even for custody transfer measurement of liquids such as fuels, solvents, alcohol derivatives etc. When ordered together with **NIVOFLIP** Magnetic Level Indicator the magnetostrictive transmitters are factory calibrated to the bypass tube and the magnetic float. The transmitter is fixed with pipe clamps and aluminum spacers.

|                                    |         | NIVOTRACK M□L, M□T (compact)                                                                                                                                                                                                          | NIVOTRACK MIL (integrated)                                                                                                                     |
|------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Measured process value             |         | Liquid level, Distance, Volume                                                                                                                                                                                                        | Liquid level, Distance                                                                                                                         |
| Nominal length                     |         | In accordance to the center with center distance of NIVOFLIP +300 / 400 mm (11.8 / 15.75") in accordance to the float type, max. 5.8 m (19 ft)                                                                                        | In accordance with the center to center distance of NIVOFLIP +300 / 400 mm (12 / 15.75") in accordance to the float type, max. 3.5 m (11.5 ft) |
| Material of the tube               |         | 1.4571 (316Ti) stainless steel                                                                                                                                                                                                        |                                                                                                                                                |
| Resolution                         |         | 0.1 or 1 mm (0.004 or 0.04") – as per selected type                                                                                                                                                                                   |                                                                                                                                                |
| Linearity with dry calibration     |         | ±0.25 or ±1 mm (± 0.01 or ±0.04") – as per selected type                                                                                                                                                                              |                                                                                                                                                |
| Zero span                          |         | Anywhere within the active range                                                                                                                                                                                                      |                                                                                                                                                |
| Ambient temperature <sup>(1)</sup> |         | –40...+90 °C (–40...194 °F),<br>plastic housing: –25...+90 °C (–13...+194 °F),<br>with display: –25...+90 °C (–13...+194 °F),<br>Ex type: see temperature diagram                                                                     | –40...+90 °C (–40...194 °F)                                                                                                                    |
| Output                             | Analog  | 4...20 mA (limit values: 3.9...20.5 mA)                                                                                                                                                                                               |                                                                                                                                                |
|                                    | Digital | HART® interface (minimal loop resistance: 250 Ω)                                                                                                                                                                                      |                                                                                                                                                |
|                                    | Display | SAP-300 graphic display                                                                                                                                                                                                               | –                                                                                                                                              |
| Damping time                       |         | Adjustable 0...99 s                                                                                                                                                                                                                   |                                                                                                                                                |
| Error indication                   |         | 22 mA or 3.8 mA or holding                                                                                                                                                                                                            |                                                                                                                                                |
| Power supply                       |         | 12.5...36 V DC                                                                                                                                                                                                                        |                                                                                                                                                |
| Electrical protection              |         | Class III                                                                                                                                                                                                                             |                                                                                                                                                |
| Ingress protection                 |         | IP67                                                                                                                                                                                                                                  | IP65                                                                                                                                           |
| Electric connection                |         | 2x M20×1.5 plastic cable glands for Ø7...13 mm (0.28...0.51") cable + Two internally threaded ½" NPT connection for protective pipes for 0.5...1.5 mm <sup>2</sup> (AWG20...15) wire cross section,<br>Ex variant: see Ex Information | Hirschmann EN 175 301-803-A (DIN 43650)                                                                                                        |
| Housing                            |         | Powder-coated aluminum (EN AC 42000), plastic (VALOX 412) or Stainless steel (KO)                                                                                                                                                     | Aluminum                                                                                                                                       |
| Weight                             |         | 1.7 kg (3.75 lb) + m. probe: 0.6 kg/m (0.4 lb/ft)                                                                                                                                                                                     | 2.9 kg (6.4 lb) + measuring probe: 0.6 kg/m (0.4 lb/ft)                                                                                        |

<sup>(1)</sup> When mounted on NIVOFLIP bypass chamber

### Ex INFORMATION

|                                            | M□□–5/7□□–9Ex <sup>(1)</sup>                                                                                                         | M□□–5/7□□–5Ex, 6Ex, 7Ex, 8Ex | M□□–5/7□□–CEx, DEx <sup>(2)</sup>                                                                                                   | M□□–5/7□□–AEx, BEx <sup>(2)</sup> |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Ex marking (ATEX)                          | Ⓔ II 1 G Ex ia IIB T6...T5 Ga                                                                                                        |                              | Ⓔ II 1/2 G Ex d ia IIB T6...T5 Ga/Gb                                                                                                | Ⓔ II 2 G Ex d IIB T6...T5 Gb      |
| Ex marking (IECEx)                         | Ex ia IIB T6...T5 Ga                                                                                                                 |                              | Ex db ia IIB T6...T5 Ga/Gb                                                                                                          | Ex db IIB T6...T5 Gb              |
| Nominal length (L)                         | 0.5...1.5 m (1.64...49 feet)                                                                                                         |                              | 0.5...10 m (1.64...32.8 feet)                                                                                                       |                                   |
| Cable entry                                | –                                                                                                                                    | M20×1.5 cable gland          | Metal M20×1.5 cable gland Ex d certification                                                                                        |                                   |
| Cable outer diameter                       | –                                                                                                                                    | Ø7...Ø13 mm (Ø0.27...Ø0.5")  | Ø9...Ø11 mm (Ø0.35...Ø0.43")                                                                                                        |                                   |
| Stock cable                                | max. 20 m; LiY-CY 6x0.5 mm; 500 V<br>C < 9 nF; L < 10 µH                                                                             |                              | –                                                                                                                                   |                                   |
| Ex power supply, Intrinsically safety data | U <sub>imax</sub> = 30 V   I <sub>imax</sub> = 140 mA<br>P <sub>imax</sub> = 1 W<br>C <sub>i</sub> < 25 nF   L <sub>i</sub> < 210 µH |                              | U <sub>imax</sub> = 30 V   I <sub>imax</sub> = 140 mA   P <sub>imax</sub> = 1 W<br>C <sub>i</sub> < 15 nF   L <sub>i</sub> < 200 µH |                                   |
|                                            |                                                                                                                                      |                              | U <sub>i</sub> : 12.5...36 V DC<br>I <sub>imax</sub> = 140 mA                                                                       |                                   |

<sup>(1)</sup> Caution! The M□□–5□□–9Ex is rated IP68. The cover, the cable gland, the cable, and the cover plug are glued in place and cannot be opened!

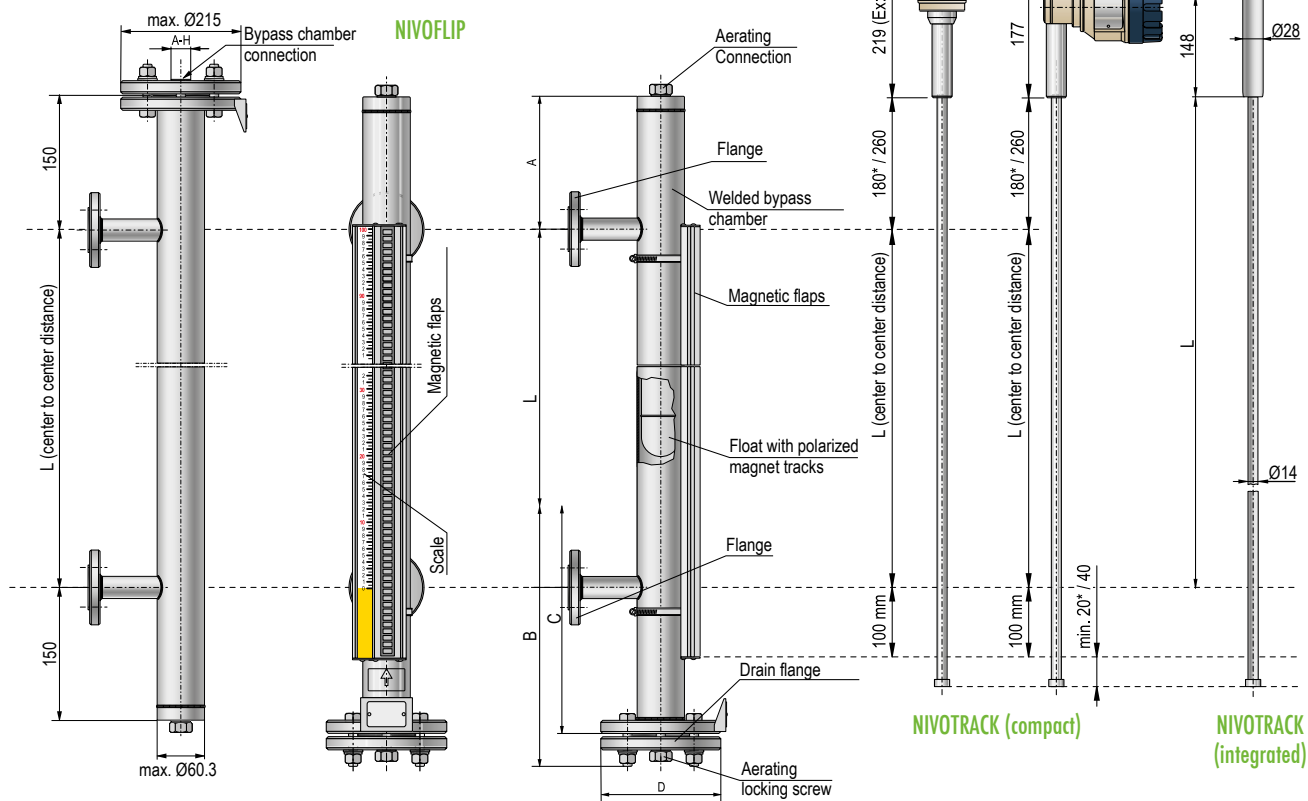
<sup>(2)</sup> Can be ordered with FM US and FM CA Ex certificates.

### NIVOTRACK FM US, FM CANADA CERTIFICATE

|                 | M□□–5□□–E,<br>M□□–5□□–F                | M□□–5□□–G,<br>M□□–5□□–H                  | M□□–5□□–J,<br>M□□–5□□–K                  |
|-----------------|----------------------------------------|------------------------------------------|------------------------------------------|
| Marking         | Class I, Zone 1, AEx db IIB T6...T5 Gb | Class I, Division 1, Groups C, D T6...T5 | Class I, Division 2, Groups C, D T6...T5 |
| Power supply    | 12.5...35 V DC                         | 24...35 V DC (min. 22.5 V @20 mA)        | 12.5...35 V DC                           |
| Maximum current | 22 mA                                  |                                          |                                          |
| U <sub>m</sub>  | 250 V                                  |                                          |                                          |

## NIVOTRACK MOUNTED ON NIVOFLIP

The length of the magnetostrictive level transmitter's probe should be 300 / 400 mm (11.8 / 15.75") longer than the center to center distance of the bypass tube, depending on float type. The level transmitter is placed onto the bypass tube so that the top of the magnetostrictive probe is at the same height as the bypass tube's top.



The end of the probe should extend the inverse polarized error indication flaps with 20 / 40 mm (0.78 / 1.57"). The supplied aluminum spacers are fixed with hex socket set screws and they are mounted to the bypass tube with pipe clamps. In case of the high-temperature type there is a ceramic fiber insulation blanket between the magnetostrictive probe and the bypass tube.

High-temperature versions have ceramic fiber insulator fabric between the bypass tube and the probe of the level transmitter.

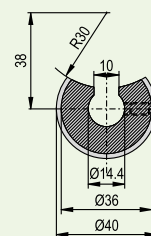
## POSITION OF THE DISPLAY

Vertical and horizontal display position is offered for optimal mounting in your application.

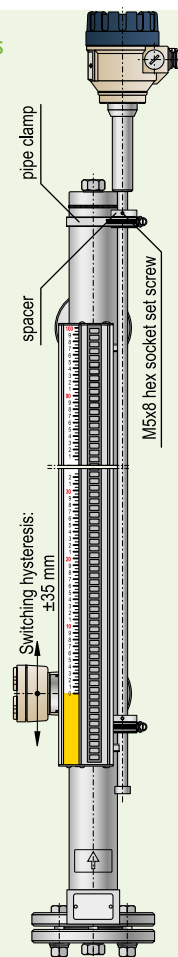
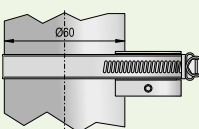
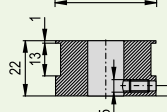
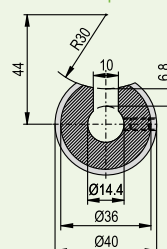


## NIVOTRACK mounting accessories

### Standard version



### High-temperature version, heat-resistant design, 1.4301 (304) Stainless steel plate housing



## ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

### Bypass liquid level indicator

NIVOFLIP M ■ ■ ■ ■ ■ Ex<sup>(1)</sup>

| Type             | Code | Process connection       | Code | Code | Measuring range (center to center) <sup>(1)</sup> | Code  | Float material / Scale <sup>(4)</sup> | Code |
|------------------|------|--------------------------|------|------|---------------------------------------------------|-------|---------------------------------------|------|
| Normal           | L    | DN15 (B form)            | A    | 0    | 0 m                                               | 0 m   | 0                                     | 0    |
| High-temperature | H    | DN20 (B form)            | B    | 1    | 1 m                                               | 0.1 m | 1                                     | 1    |
|                  |      | DN25 (B form)            | C    | 2    | 2 m                                               | 0.2 m | 2                                     | 2    |
|                  |      | DN40 (B form)            | D    | 3    | 3 m                                               | 0.3 m | 3                                     | 3    |
|                  |      | DN50 (B form)            | E    | 4    | 4 m                                               | 0.4 m | 4                                     | 4    |
|                  |      | 1/2" RF                  | F    | 5    | 5 m                                               | 0.5 m | 5                                     | 5    |
|                  |      | 3/4" RF                  | G    |      |                                                   | 0.6 m | 6                                     |      |
|                  |      | 1" RF                    | H    |      |                                                   | 0.7 m | 7                                     |      |
|                  |      | 1 1/2" RF                | J    |      |                                                   | 0.8 m | 8                                     |      |
|                  |      | 2" RF                    | K    |      |                                                   | 0.9 m | 9                                     |      |
|                  |      | 3/4" BSPT <sup>(3)</sup> | X    |      |                                                   |       |                                       |      |
|                  |      | 3/4" NPT <sup>(3)</sup>  | Y    |      |                                                   |       |                                       |      |
|                  |      | 1" BSPT <sup>(3)</sup>   | 1    |      |                                                   |       |                                       |      |
|                  |      | 1" NPT <sup>(3)</sup>    | 2    |      |                                                   |       |                                       |      |

| Pressure rating  | Code |
|------------------|------|
| PN40, Class 400  | 1    |
| PN63, Class 600  | 3    |
| PN100, Class 900 | 4    |
| PN16, Class 150  | 5    |

| Float material / Scale <sup>(4)</sup>            | Code |
|--------------------------------------------------|------|
| Stainless steel / mm scale <sup>(5)</sup>        | 0    |
| Titanium / mm scale                              | 1    |
| Stainless steel / Feet/inch scale <sup>(5)</sup> | 2    |
| Titanium / Feet/inch scale                       | 3    |

| Bypass chamber version <sup>(6)</sup> , Bypass connection | Code |
|-----------------------------------------------------------|------|
| 3/4" BSP                                                  | A    |
| 3/4" NPT                                                  | B    |
| 1" BSP                                                    | C    |
| 1" NPT                                                    | D    |
| 1 1/2" BSP                                                | E    |
| 1 1/2" NPT                                                | F    |
| 2" BSP                                                    | G    |
| 2" NPT                                                    | H    |

<sup>(1)</sup> Ex versions are marked "Ex" right after the type designation on the label.

<sup>(4)</sup> Special float is available to order for interface level indication.

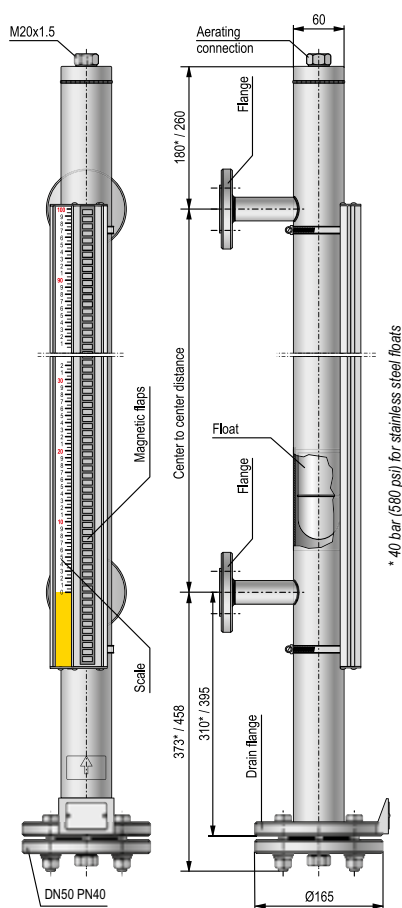
<sup>(2)</sup> Maximal center to center distance: 5.5 m (18 ft)

<sup>(5)</sup> Only for PN63, 600 psi type.

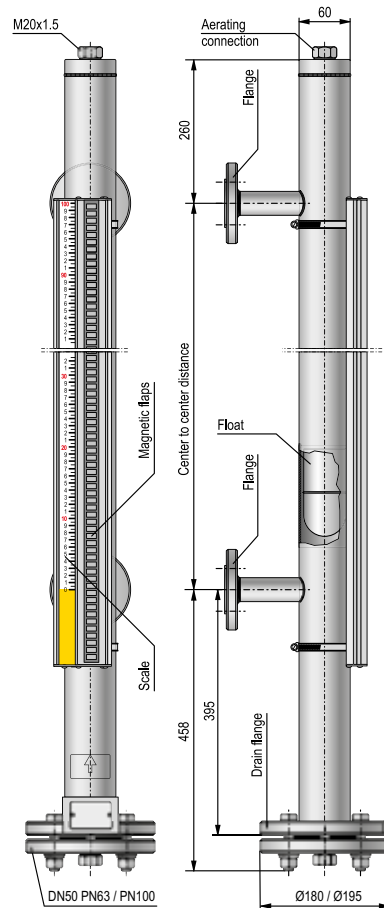
<sup>(3)</sup> Max. 40 bar (580 psi)

<sup>(6)</sup> Without float and flip.

## DIMENSIONS



MLQ-100



MLQ-300 / -400

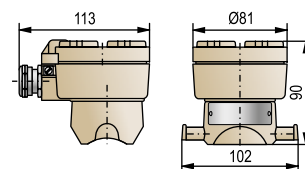
## ACCESSORIES

### Magnetic level switches

NIVOFLIP MAK-100- ■ <sup>(1)</sup>

| Output / Ex | Code |
|-------------|------|
| Normal      | 0    |
| Ex d e m Gb | 7    |

<sup>(1)</sup> Ex versions are marked "Ex" after the type designation on the label.



MAK-100

## ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

### Magnetostrictive Compact Level Transmitters

#### NIVOTRACK M ■ ■ ■ ■ ■ Ex<sup>(1)</sup>

| Type                                 | Code |
|--------------------------------------|------|
| Transmitter                          | T    |
| Transmitter + display <sup>(2)</sup> | B    |

| Probe / temperature        | Code |
|----------------------------|------|
| Without float, max. +90 °C | L    |
| 5.8 m, max. +200 °C        | T    |

| Housing                | Code |
|------------------------|------|
| Aluminum               | 5    |
| Plastic <sup>(3)</sup> | 6    |
| Stainless steel        | 7    |

| Code | Probe length <sup>(4)</sup> | Code |
|------|-----------------------------|------|
| 0    | 0 m                         | 0    |
| 1    | 1 m                         | 1    |
| 2    | 2 m                         | 2    |
| 3    | 3 m                         | 3    |
| 4    | 4 m                         | 4    |
| 5    | 5 m                         | 5    |
|      | 0.6 m                       | 6    |
|      | 0.7 m                       | 7    |
|      | 0.8 m                       | 8    |
|      | 0.9 m                       | 9    |

| Output / Resolution / Ex | Code |
|--------------------------|------|
| 0.1 mm                   | 1    |
| 1 mm                     | 2    |
| 0.1 mm / Ex ia           | 5    |
| 1 mm / Ex ia             | 6    |
| 0.1 mm / Ex d            | A    |
| 0.1 mm / Ex d + Ex ia    | C    |
| 4...20 mA                |      |
| HART®                    |      |
| 0.1 mm                   | 3    |
| 1 mm                     | 4    |
| 0.1 mm / Ex ia           | 7    |
| 1 mm / Ex ia             | 8    |
| 0.1 mm / Ex ia / IP68    | 9    |
| 0.1 mm / Ex d            | B    |
| 0.1 mm / Ex d + Ex ia    | D    |

| Dual compartment type | Code |
|-----------------------|------|
| 0.1 mm / XP Zona 1    | F    |
| 0.1 mm / XP IS Div 1  | H    |
| 0.1 mm / NI Div 2     | K    |
| HART®                 |      |
| 0.1 mm / XP Zona 1    | E    |
| 0.1 mm / XP IS Div 1  | G    |
| 0.1 mm / NI Div 2     | J    |

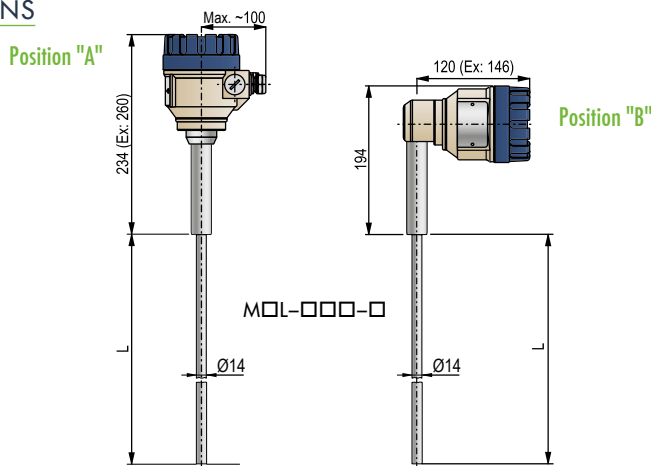
<sup>(1)</sup> Ex versions are marked "Ex" right after the type designation on the label.

<sup>(2)</sup> The position of the display ("A" or "B") should be specified in the order.

<sup>(3)</sup> Not available in Ex version

<sup>(4)</sup> Probe length = center to center of NIVOFLIP + 300 mm or 400 mm (11.8 / 15.75") as per float type and pressure rating. Maximum probe length 5.8 m (19 ft).

## DIMENSIONS



### Magnetostrictive Integrated Level Transmitters

#### NIVOTRACK M | L-5 ■ ■ ■ -M

| Type                   | Code |
|------------------------|------|
| Integrated transmitter | I    |

| Probe                     |
|---------------------------|
| Without float, max. 3.5 m |

| Housing         |
|-----------------|
| Stainless steel |

| Code | Probe length <sup>(1)</sup> | Code |
|------|-----------------------------|------|
| 0    | 0 m                         | 0    |
| 1    | 1 m                         | 1    |
| 2    | 2 m                         | 2    |
| 3    | 3 m                         | 3    |
|      | 0.4 m                       | 4    |
|      | 0.5 m                       | 5    |
|      | 0.6 m                       | 6    |
|      | 0.7 m                       | 7    |
|      | 0.8 m                       | 8    |
|      | 0.9 m                       | 9    |

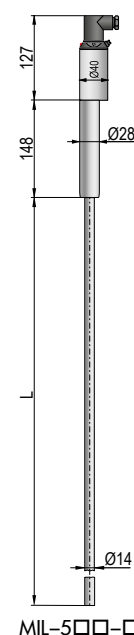
| Output / Resolution |
|---------------------|
| 4...20 mA           |
| + HART®             |
| / 1 mm              |
| / DIN connector     |

<sup>(1)</sup> Probe length = center to center of NIVOFLIP + 300 mm or 400 mm (11.8 / 15.75") as per float type and pressure rating. Maximum probe length 3.5 m (11.5 ft)

## ACCESSORIES

### Intrinsically safe isolator power supply modules

| UNICONT PGK-301- |                        |    |
|------------------|------------------------|----|
| 4...20 mA        | high precision         | -A |
|                  | high precision / HART® | -B |
|                  | high speed             | -C |
|                  | high speed / HART®     | -D |



NIVELCO reserves the right to change technical data without notice! The units of measurement on the drawings are in mm.

