NIVETEC Instrumentação e Controle

# Catálogo

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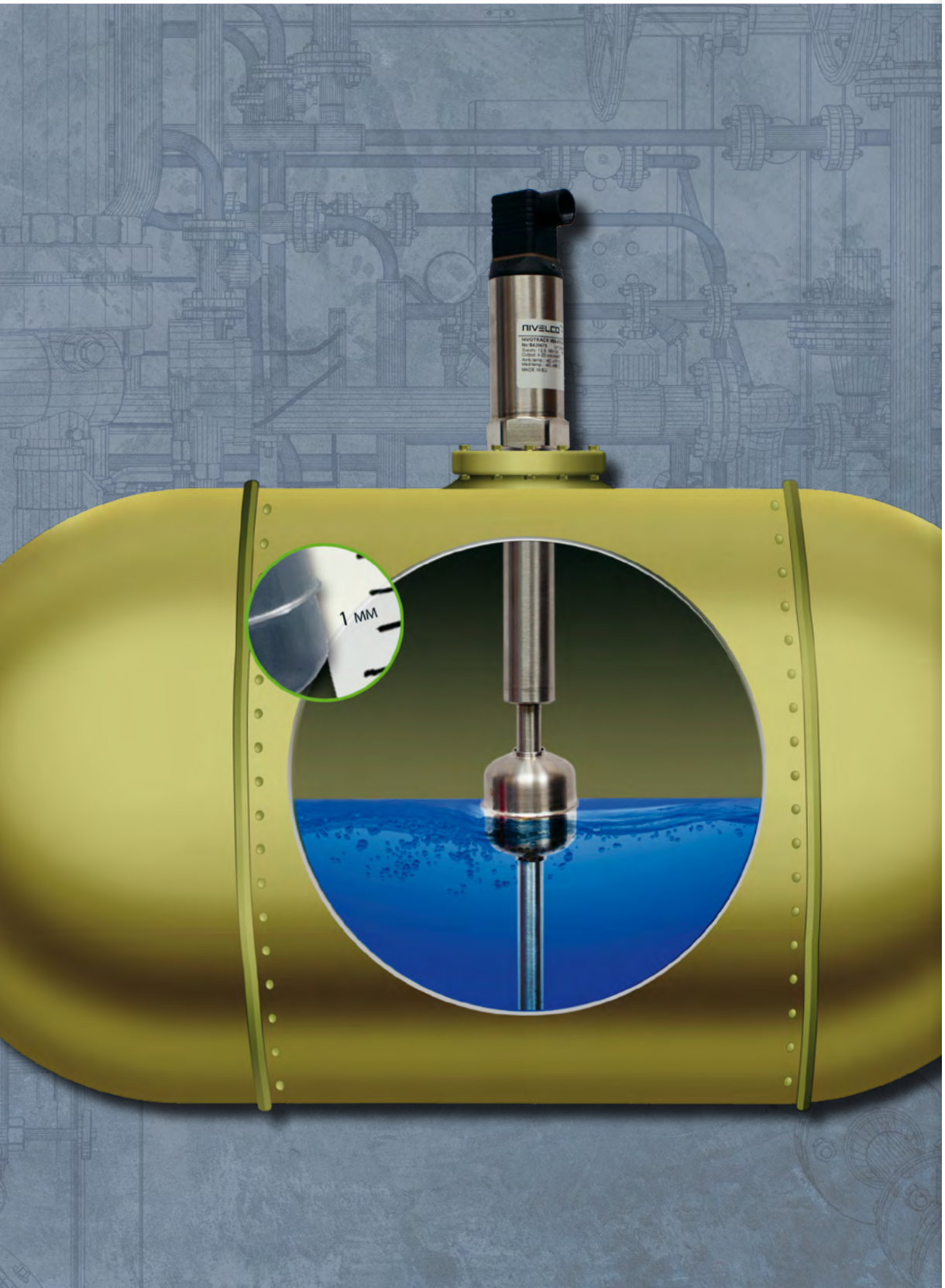
# NIVOTRACK

NEW PRODUCT

NIVETEC

MAGNETOSTRICTIVE INTEGRATED LEVEL TRANSMITTERS




NIVELCO

LEVEL TRANSMITTERS

## GENERAL DESCRIPTION

**NIVOTRACK MI□-5□□, MY□-5□□** magnetostrictive level transmitters are ideal solutions for high accuracy measurements of clean fluids. Its high precision renders the NIVOTRACK suitable for custody transfer measurements. Integrating the transmitter into a process control system is easy thanks to the intelligent signal processing and communication software as well as the wide of range of accessories offered.

MIA-513

## OPERATING PRINCIPLE

A float containing a magnetic disc moves along a guide tube with the specific magnetostrictive wire in it. A pulse generated by the electronics travels along the magnetostrictive wire. At the point the pulse reaches the float's magnetic field, a torsion develops. Reflected from the torsion point, the pulse creates an acoustic wave that travels back along the wire. The 4 – 20 mA output of the transmitter is proportional to the elapsed time between the excitation and detection.

## MAIN FEATURES

- 2-wire integrated transmitter
- 1 mm resolution
- Distance and level measurement
- Standard and mini type versions
- Stainless steel or titanium floats
- IP65 protection
- HART® communication
- Chemicals, solvents, hydrocarbons
- Level monitoring of tanks
- Interface measurement

## APPLICATIONS

- Level measurement of liquids, with minimum 0.4 kg/dm$^3$ density
- Chemical industry
- Power plants
- Oil industry
- Water industry

## TECHNICAL DATA

| Type | | Rigid probe version – standard (MI□) | Rigid probe version – mini (MY□) |
|---|---|---|---|
| Measured process value | | Liquid level, distance | |
| Nominal length (L) | | 0.3 m – 3.5 m | 0.3 m – 1.5 m |
| Material of the tube | | 1.4571 (316Ti) stainless steel | |
| Max. medium pressure[1] | | 2.5 MPa (25 bar) | 1.6 MPa (16 bar) |
| Medium temperature[1] | | -40 °C … +90 °C | |
| Standard float diameter / material[1] | | Ø54 x 60 mm cylindrical / 1.4404 | Ø28 x 29 mm / 1.4404 |
| Medium density | | Ø54 mm float min. 0.8 g/cm$^3$; Ø54 mm titanium float min. 0.55 g/cm$^3$ Ø95 mm float min. 0.55 g/cm$^3$ Ø124 mm or Ø95 mm titanium float min. 0.4 g/cm$^3$ | |
| Material of wetted parts | | Stainless steel: 1.4571 (316Ti), floats: see "Float Selection" | |
| Ambient temperature | | -40 °C … +70 °C | |
| Output | Analogue | 4 – 20 mA (limit values: 3.9 – 20.5 mA) | |
| | Digital communication | HART® (minimum loop resistance: 250 Ω) | |
| Error indication | | Output signal = 22 mA or 3.8 mA | |
| Output load | | Rt = (Ut - 12.5 V) / 0.02 A, Ut = power supply voltage | |
| Power supply | | 12.5 V – 36 V DC | |
| Electrical protection | | Class III | |
| Ingress protection | | IP65 | |
| Process connection | | As per order code | |
| Electric connection (M□□-5□□-M types) | | Hirschmann EN 175 301-803-A (DIN 43650) | |
| Mass | | 2.9 kg + measuring probe: 0.6 kg/m | 2.9 kg + measuring probe: 0.3 kg/m |

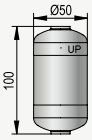
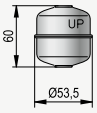
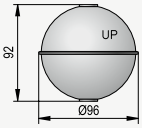
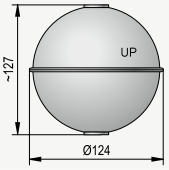
[1] *Details of non-standard floats can be found under "Float Selection".*

## MEASUREMENT DATA

| Type | M□□-5□□-□ |
|---|---|
| Resolution (on HART® transmitted value) | 1 mm |
| Nonlinearity (on HART® transmitted value) | ±2 mm or ±0.085% F.S. whichever is greater |
| Hysteresis (under reference conditions) | ±0.25 mm |
| Zero span (in LEVEL measurement mode) | Anywhere within the active range |
| Measurement range (reducing)* | Minimal range: 32 mm; Maximum range: see "Dimensions" |
| Temperature error | 0.04 mm / 10 °C (between -25 °C … +50 °C) |
| Current output resolution | 0.4 µA |
| Current output accuracy | 33 µA |
| Current output temperature error | 6 ppm / °C |

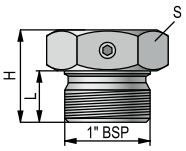
**The accuracy data is only valid for factory default settings!*

## FLOAT SELECTION

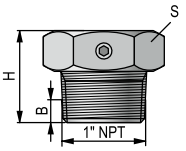
| Type | MBA-505-2M-600-00[1][4] | MBA-505-2M-800-00[1][4] | MBA-505-2M-200-00[1][4] | MBK-530-2M-400-00[2][4] | MBK-530-2M-800-00[2][4] | MBA-505-2M-900-00[2][4] | 4w34bs-16yyyyy[3][5] |
|---|---|---|---|---|---|---|---|
| Dimensions |  |  | |  | |  |  |
| Medium density (min.) | 0.45 kg/dm³ | 0.55 kg/dm³ | 0.8 kg/dm³ | 0.55 kg/dm³ | 0.4 kg/dm³ | 0.4 kg/dm³ | 0.8 kg/dm³ |
| Material | Titanium | | 1.4404 | 1.4435 | Titanium | 1.4401 | 1.4404 |
| Medium pressure | 2 MPa (20 bar) | 2.5 MPa (25 bar) | | | | | 1 MPa (10 bar) |

*[1] Designed for min. 2" process connection, only order with rigid probe. [2] Flange to be ordered separately. [3] Designed for min. 1" process connection, only order with mini type. [4] Not available for MY□ type. [5] Only available for MY□ type.*

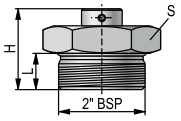
## DIMENSIONS



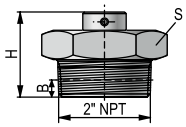

MBH-105-2M-300-00



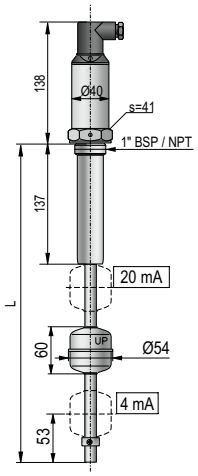

MBL-105-2M-300-00



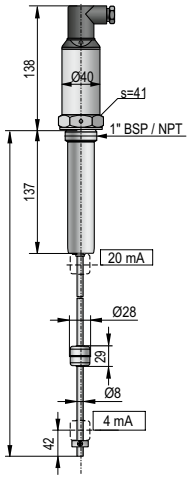

MBK-105-2M-300-00




MBN-105-2M-300-00




MI□-5□□-M




MY□-5□□-M

## ORDER CODES (NOT ALL COMBINATION AVAILABLE)

NIVOTRACK M■■-5■■-■

| Type | Code |
|---|---|
| Integrated transmitter | I |
| Integrated transmitter mini | Y |

| Probe type / Process connection | | Code |
|---|---|---|
| Rod | 1" BSP | A |
| | 2" BSP | C |
| | 1" NPT | D |
| | 2" NPT | G |
| Rod without proc. conn. | | U* |

| Housing | Code |
|---|---|
| Aluminium | 5 |

| Code | Probe length | | Code |
|---|---|---|---|
| 0 | 0 m | 0 m | 0 |
| 1 | 1 m | 0.1 m | 1 |
| 2 | 2 m | 0.2 m | 2 |
| 3 | 3 m | 0.3 m | 3 |
| | | 0.1 m | 4 |
| | | 0.5 m | 5 |
| | | 0.6 m | 6 |
| | | 0.7 m | 7 |
| | | 0.8 m | 8 |
| | | 0.9 m | 9 |

| Output / Ex | Code |
|---|---|
| 4 – 20 mA + HART® / 1 mm / conn. | M |

*Minimal probe length: 300 mm.*
**With optional process connection.*

## ACCESSORIES

| Threaded sliding sleeve | | | |
|---|---|---|---|
| Type | Process conn. | Type | Process conn. |
| MBL-105-2M-300-00 | 1" NPT | MBH-105-2M-300-00 | 1" BSP |
| MBN-105-2M-300-00 | 2" NPT | MBK-105-2M-300-00 | 2" BSP |

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