

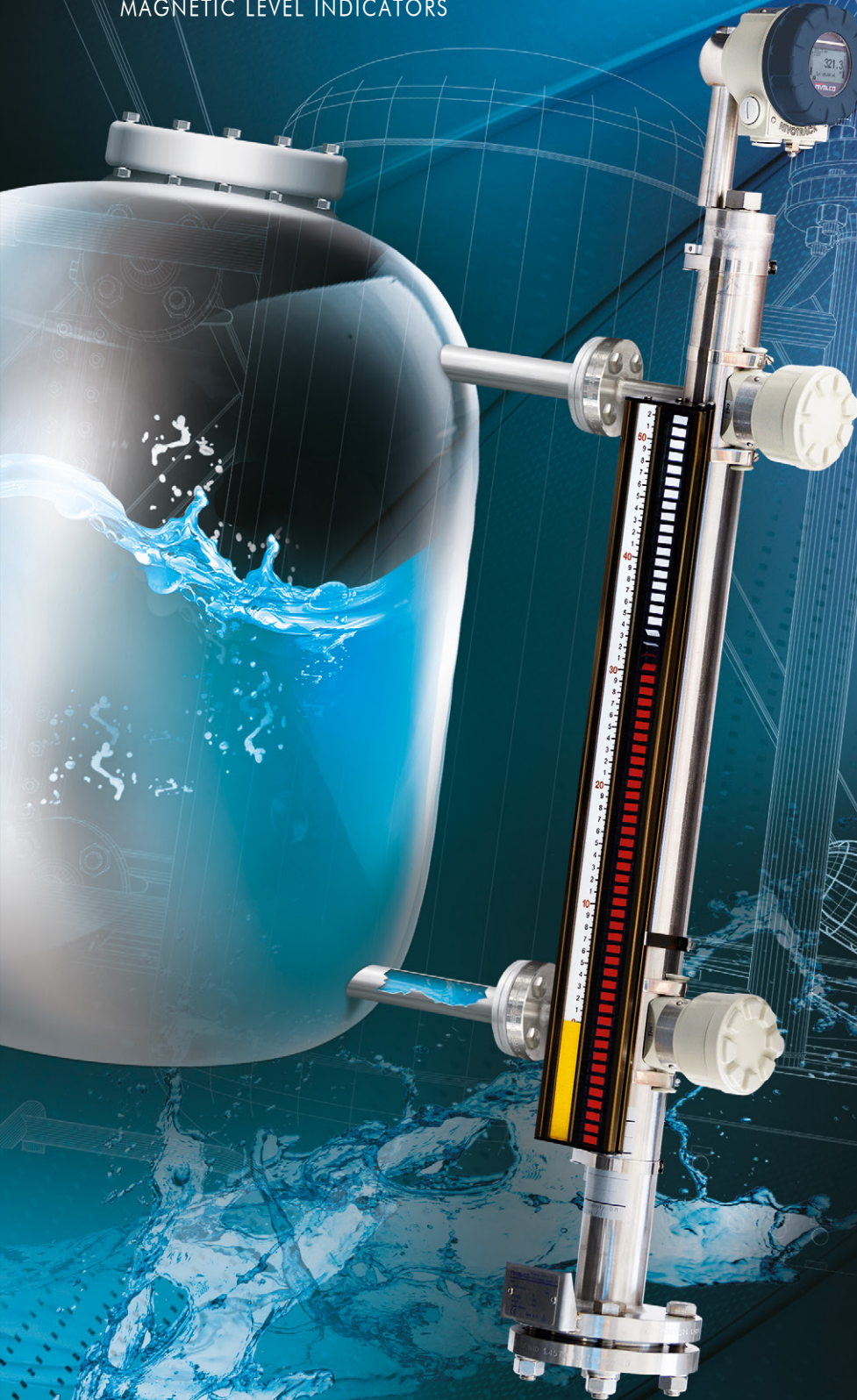


RusAutomation

VISUAL DISPLAY

NIVOFLIP

MAGNETIC LEVEL INDICATORS



3 YEARS WARRANTY @ NIVELCO – WHERE ELSE?

NIVELCO

LEVEL INDICATOR

GENERAL DESCRIPTION

NIVOFLIP is a bypass level indicator for pressurized vessels with up to 5.5 m 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 process pressure. The high temperature types are applicable up to +250 °C 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.

MAIN FEATURES

- Clearly visible optical display
- Measuring range: 500 – 5500 mm
- ±10 mm accuracy
- Max. 100 bar process pressure
- High temperature version
- Optional level switches
- Optional magnetostrictive level transmitter

APPLICATIONS

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

CERTIFICATIONS

- PED approval
- ATEX approval: MAK-100 level switches

FLOAT SELECTION

Type	Float material			
	Stainless steel		Titan Ti Gr.2	
Maximum process pressure	40 bar	63 bar	40 bar	100 bar
Medium density	0.8 – 1.25 kg/dm ³		0.6 – 1.1 kg/dm ³	0.7 – 1.1 kg/dm ³
Maximum process temperature	+250 °C			

OPERATION

The welded bypass chamber that is the body of the indicator and the tank form one pressurized system. Mounted on suitable connection flanges located on the side of the tank the liquid level in the bypass tube and the tank is equal. A float in the bypass tube incorporating a polarized magnet tracks the level of the liquid. The bi-coloured magnetic flaps mounted on the tube composing a bar are serving as visual indicators by changing their colour as the float passes. The rotated flaps represent the actual level. The lower 100 mm of the bottom section of the indicating bar has different colour providing for an optical error signal in case the liquid level drops below the lower connection point of the instrument.

NIVOFLIP LEVEL INDICATOR SYSTEM

The NIVOFLIP bypass liquid level indicator can be equipped with MAK-100-□ external level switches and this way it can provide limit level indication. In case of using MAK-100 level switch the minimal medium density should be 0.1 kg/dm³ more than the specified. When the provided accuracy of the magnetic flaps is not enough, the high-precision NIVOTRACK M□L-500 / 700 magnetostrictive level transmitters are recommended to use. Equipped with the OIML R 85 approved NIVOTRACK the measurement system is applicable for custody transfer measurements. The rigid probe magnetostrictive transmitter without float and process connection can be mounted externally by clamps to the bypass chamber. All optional units are operated via magnetic coupling, there is no direct contact with the measured medium.

NIVOFLIP M□L-100 + MAK-100
+ NIVOTRACK M□L-500/600



PROPERTIES

NIVOFLIP	Normal type	High temperature type
Stainless steel float	■	■
Titan float	■	■
PED approval	■	■
Maximum 100 bar medium pressure	■	–
Maximum +250 °C medium temperature	–	■
Optional level switch	■	■
Optional level transmitter	■	■

TECHNICAL DATA

Type	Standard type	High temperature type
Visual display	Bi-coloured magnetic flaps	
Display	scale	cm / inch
	accuracy	±10 mm
	resolution	5 mm
	error indication	Lower 100 mm, inverse polarized flaps
Tube diameter	Ø60.3 mm	
Flange distance (center to center)	500 – 5500 mm (as per order code)	
Process connection	DIN, ANSI flanges (as per order code)	
Vent connection	M20x1.5	
Process pressure	Max. 100 bar	Max. 88 bar
Medium temperature	-35 °C ... +130 °C	-35 °C ... +250 °C
Ambient temperature	-40 °C ... +60 °C	
Medium density ⁽¹⁾	With stainless steel float: 0.8 – 1.25 kg/dm ³ , with titan float: 0.6 – 1.1 kg/dm ³	
Level switch	Optional, freely adjustable MAK-100 level switch ⁽²⁾	
PED (2014/68/EU) approval	Category III, Module B + C2	
Level transmitter	Optional NIVOTRACK M□L-500 / 600 / 700 magnetostrictive level transmitter ⁽²⁾	
Mass	About 25 kg for 1 m center to centre distance	

⁽¹⁾ In case of using MAK-100 level switch the minimal medium density should be 0.1 kg/dm³ more than the above specified

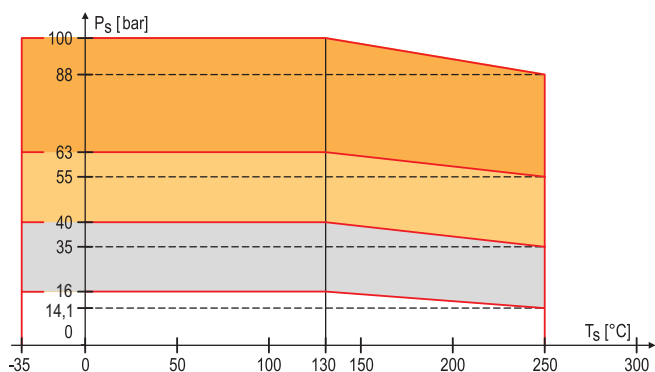
⁽²⁾ In case of using NIVOTRACK level transmitter or MAK-100 level switch the maximum temperature values are shown on the diagram below

Maximum process pressure		Maximum process temperature	
Process connection	Bypass tube / Flange rating	T _{max} = 130 °C	
		Standard	High temperature type
		Maximum process pressure	
DIN flanges DN15 – DN50	Ø60mm / PN16	16 bar	14.1 bar
	Ø60mm / PN40	40 bar	35 bar
	Ø60mm / PN63	63 bar	55 bar
	Ø60mm / PN100	100 bar*	88 bar*
ANSI flanges ½" – 1"	Ø60mm / 150 Class	232 psi	204 ps
	Ø2.35" / 400 Class	580 psi	500 psi
	Ø2.35" / 600 Class	930 psi	800 psi
	Ø2.35" / 900 Class	1440 psi*	1275 psi*

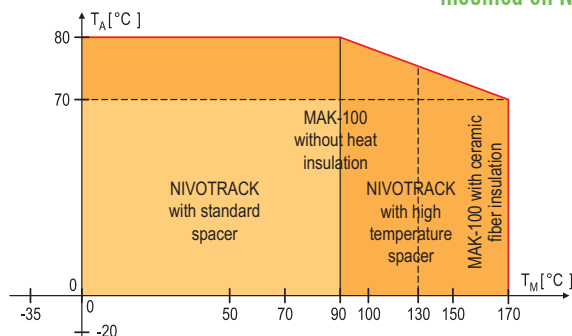
*Only with titanium float

TEMPERATURE DIAGRAM

Temperature (T_s) – Pressure (P_s) diagram



Medium temperature (T_M) – Ambient temperature (T_A) diagram when NIVOTRACK level transmitter or MAK-100 level switch is mounted on NIVOFLIP



ООО “РусАвтоматизация”