

# HL 91 LEVEL INDICATORS

## TECHNICAL DATA

HL 91 level indicators are directly connected to the reservoir to check the level and temperature of the hydraulic fluid. There are 3 different dimensions available with difference between centers of 3 in (76 mm), 5 in (127 mm) and 10 in (254 mm) and are equipped with M10 or M12 fixing screws.

Versions with a thermometer are also available.

The external protection is made of anodized aluminum to provide strong impact resistance, while the central body is made of see-thru polyamide.

- Anodized aluminum external protection
- High resistance against impacts
- Applicability to pressurized tanks up to 14.5 psi (1 bar)

### MATERIALS

External protection	Anodized aluminum
Terminals	Reinforced nylon
Central body	See-thru polyamide
Reading tag	Polyamide
Fixing screws	Zinc-plated steel
Nuts	Zinc-plated steel
Seals	Buna - Viton

### FLUIDS COMPATIBILITY

In accordance with ISO 2943 (Norm ISO 6743/4)

Mineral oils	HH - HL - HM - HR - HV - HG
Water emulsions	HFAE - HFAS
Synthetic fluids	HS - HFDR - HFDU - HFDS

### PRESSURE

Maximum working pressure 14.5 psi (1 bar)

### WORKING TEMPERATURE

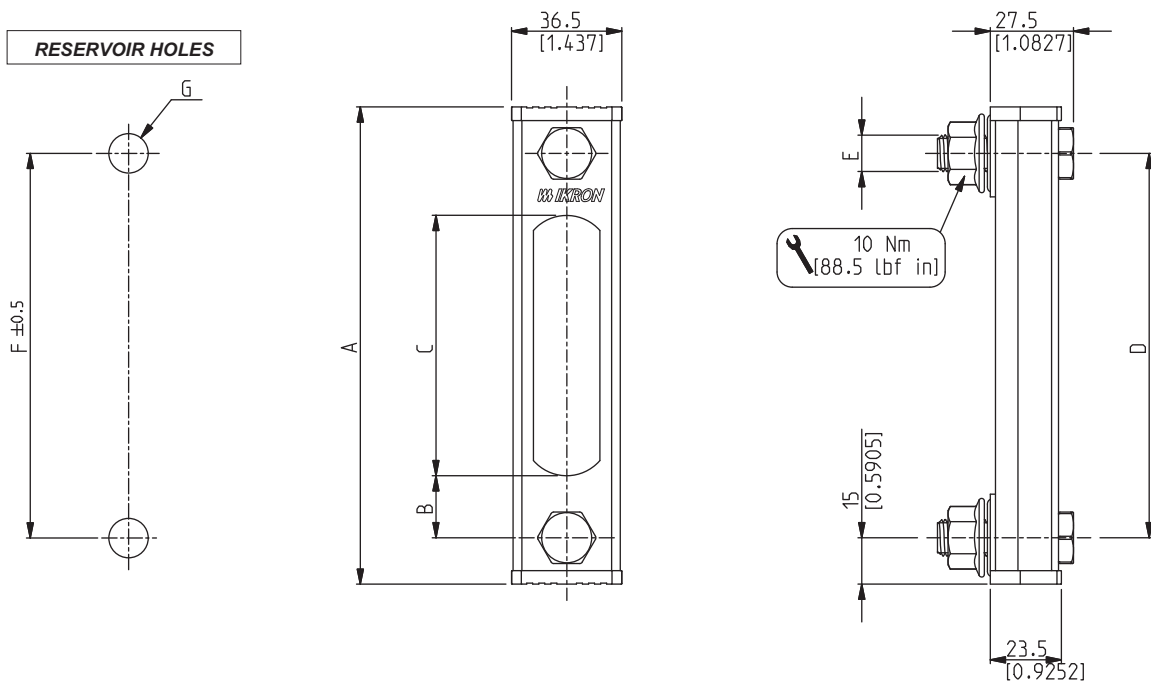
-22 ÷ 195 °F (-30 ÷ 90 °C)

### THERMOMETER RANGE

HL 91-10	32 ÷ 176 °F (0 ÷ 80 °C)
HL 91-20	32 ÷ 212 °F (0 ÷ 100 °C)
HL 91-30	32 ÷ 212 °F (0 ÷ 100 °C)

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## DIMENSIONS

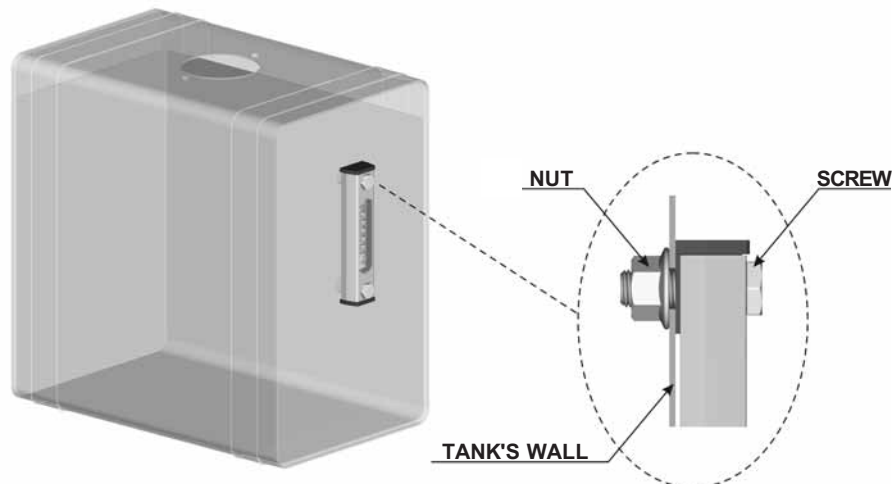


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Indicator type	Weight	A	B	C	D	E	F	G
	Kg(lbs)							
<b>HL 91-10</b>	0,15	106	17,5	41	76	M10	76	11 (0.4330)
	(0.33)	(4.1732)	(0.6890)	(1.6142)	(3.0000)	M12	(3.0000)	13 (0.5118)
<b>HL 91-20</b>	0,19	157	20,5	86	127	M10	124	11 (0.4330)
	(0.42)	(6.1811)	(0.8071)	(3.3858)	(5.0000)	M12	(5.0000)	13 (0.5118)
<b>HL 91-30</b>	0,23	284	20,5	213	254	M10	254	11 (0.4330)
	(0.51)	(11.1811)	(0.8071)	(8.3858)	(10.0000)	M12	(10.0000)	13 (0.5118)

## ASSEMBLY INSTRUCTIONS

The connection of the HL 91 level indicators is done through the built-in-screws. After they pass the tank's drilled wall they have to be mounted using the supplied nuts to a torque of 88.5 lbf in (10 Nm). Before connecting make sure there are no burrs in the screws mounting seats.



### NOTE

To avoid accidental impacts that might break the level indicator and cause oil leaks, we suggest to arrange additional protection of the tank.

01/09.2011

## HOW TO ORDER AN HL 91 LEVEL INDICATOR

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>HL 91</b>	<b>-</b>	<b>10</b>	<b>-</b>
<b>T1</b>	<b>-</b>	<b>T</b>	<b>-</b>
			<b>B</b>

<b>1</b>	<b>Indicator type</b>	<b>CODE</b>
	3 in (76 mm) wheelbase	<b>HL 91-10</b>
	5 in (127 mm) wheelbase	<b>HL 91-20</b>
	10 in (254 mm) wheelbase	<b>HL 91-30</b>

<b>2</b>	<b>Fixing screws</b>	<b>CODE</b>
	M 10	<b>T1</b>
	M 12	<b>T2</b>

<b>3</b>	<b>Thermometer</b>	<b>CODE</b>
	Without	<b>N</b>
	With thermometer	<b>T</b>

<b>4</b>	<b>Seals</b>	<b>CODE</b>
	Buna	<b>B</b>
	Viton	<b>V</b>

- Standard
- On request

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## HB 02 LEVEL INDICATOR

### TECHNICAL DATA

HB 02 level indicators are directly connected to the reservoir to check the level of the hydraulic fluid. The body is made of aluminum and provides a see-thru tag made of polyamide resin. They are available with GAS threads from G1/4" to G1"1/4 and are supplied with the necessary bonded seal washer.

- Aluminum body
- Maximum working pressure 145 psi (10 bar)
- High resistance to weather conditions

#### MATERIALS

Body	Aluminum
Tag	Polyamide
Contrast screen	Painted aluminum

#### FLUIDS COMPATIBILITY

According to ISO 2943 (Norm ISO 6743/4)

Mineral oils	HH - HL - HM - HR - HV - HG
Water emulsions	HFAE - HFAS
Synthetic fluids	HS - HFDR - HFDU - HFDS

#### PRESSURE

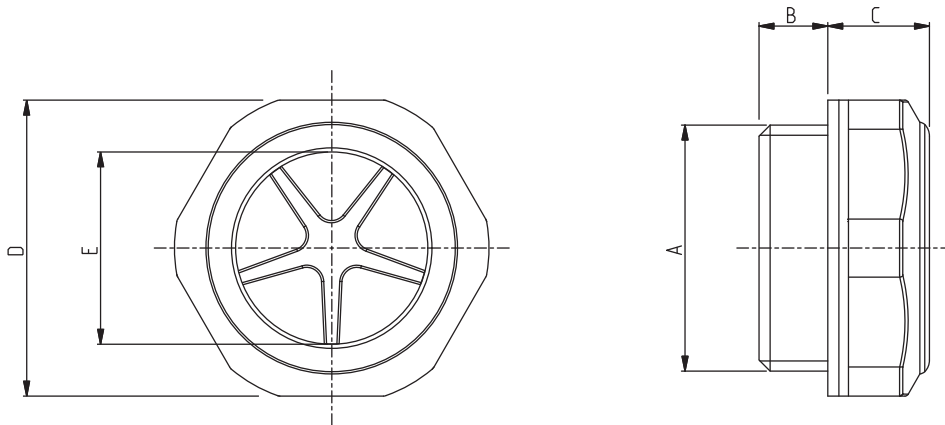
Maximum working pressure	145 psi (10 bar)
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#### WORKING TEMPERATURE

-22 ÷ 195 °F (-30 ÷ 90 °C)
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## DIMENSIONS

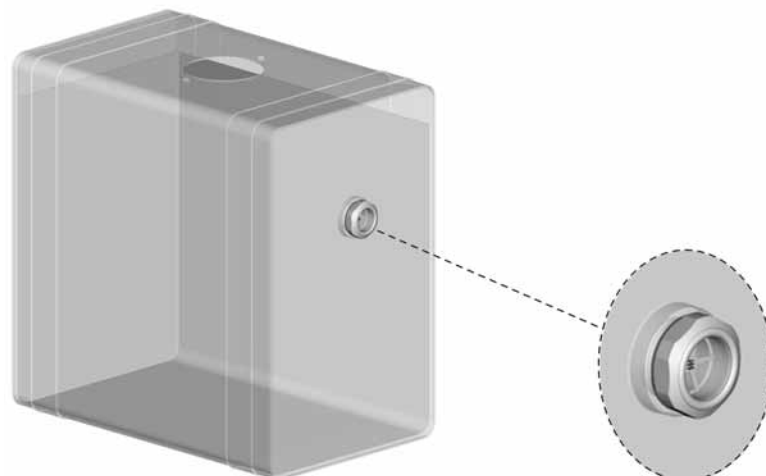


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Indicator type	Weight	A	B	C	D	E	Tightening torque
	Kg(lbs)	GAS-BSPP	mm(in)	mm(in)	mm(in)	mm(in)	Nm(lbf in)
<b>HB 02-GB</b>	0,006 (0.013)	G 1/4	6 (0.2362)	11 (0.4331)	18 (0.7087)	11 (0.4331)	15 (133)
<b>HB 02-GC</b>	0,010 (0.022)	G 3/8	7,5 (0.2953)	11,5 (0.4528)	22 (0.8661)	13 (0.5118)	15 (133)
<b>HB 02-GD</b>	0,013 (0.029)	G 1/2	7,5 (0.2953)	11,5 (0.4528)	27 (1.0630)	16 (0.6299)	20 (177)
<b>HB 02-GE</b>	0,020 (0.044)	G 3/4	10,5 (0.4134)	10,5 (0.4134)	32 (1.2598)	20 (0.7874)	30 (265)
<b>HB 02-GF</b>	0,032 (0.070)	G 1	9,5 (0.3740)	12,5 (0.4921)	40 (1.5748)	26 (1.0236)	50 (442)
<b>HB 02-GG</b>	0,054 (0.119)	G 1 1/4	10,5 (0.4134)	15,5 (0.6102)	50 (1.9685)	34 (1.3386)	60 (531)

## ASSEMBLY INSTRUCTIONS

HB 02 level indicators get connected to the tank by screwing them to a seat with an orthogonal surface. Before connecting make sure there are no burrs in the mounting threaded seats. Use the tightening torques suggested by the table above.



### NOTE

To avoid accidental impacts that might break the level indicator and cause oil leaks, we suggest to arrange additional protection of the tank.

01/09.2011

## HOW TO ORDER AN HB 02 LEVEL INDICATOR

**1**
**2**

<b>HB 02</b>	-	<b>GF</b>
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1	Level indicator type	CODE
	See table on page 5	HB 02

2	Connection thread	CODE
	G 1/4	GB
	G 3/8	GC
	G 1/2	GD
	G 3/4	GE
	G 1	GF
	G 1 1/4	GG

	Standard
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	On request
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