

Filler breathers

HB 50 / HB 70 / HB 110 / HB 120 series

Air filters

AF 105 / AF 106 series

Level gauges

HL 91 / HB 02 series



RESERVOIR COMPONENTS

Apart from the main components such as pumps, motors, valves, cylinders, hoses and filters every complex plant with a hydraulic circuit has need for a reservoir containing fluid.

Reservoirs are often placed in uncomfortable positions especially on mobile machines where the reduction of obstructions is important.

Rationale suggests reservoirs be put in accessible positions and locations in order to periodically check the fluid through particular devices installed on them.

Reservoirs are normally built according to quantity of fluid circulating in some unit of time, often with bulkheads that allow heat-exchange along with speed reduction and partial pollutant settling.

Another important suggestion is the location of the fluid's outlet and inlet which need to be as far apart as possible.

As well as tank-mounted return line filters and suction line filters the other components that are usually directly connected to the reservoir are shown in this catalog as follows:

- Filler caps
- Filler caps with air breather
- Air breathers
- Visual level indicators

All these components are introduced with all their own characteristics and are essential to keep the fluid in optimal condition, which is most important to allow high and long-lasting performance of the entire plant.



HB 50 FILLER CAP WITH AIR BREATHER

TECHNICAL DATA

HB50 filler caps are used for air filtration and filling the reservoir.

The cap's cover is made of chromium plated steel while all the other components are zinc-plated steel.

For the air filtration 10 and 40 µm built-in-media are available.

They can also feature a basket to pre-filter the incoming oil avoiding macroparticle contamination and a level dipstick available in three different heights.

The tank connection can be made through flanges with screws, welding flanges or directly with a 1/4" GAS male thread. Another option is the chainlet that keeps the cap connected with the flange beneath.

- Chromium-plated steel cover
- Level dipstick on board

MATERIALS

Cap	Chromium-plated steel
Basket	Zinc-plated steel
Level dipstick	Zinc-plated steel
Fixing flange with screws	Zinc-plated steel
Welding flange	Steel
Chainlet	Zinc-plated steel
Seals	Buna
Filtering media	Polyurethane

FLUID COMPATIBILITY

Conforming to ISO 2943 (Norm ISO 6743/4)

Mineral Oils	HH - HL - HM - HR - HV - HG
Water emulsions	HFAE - HFAS
Glycol water	HFC
Synthetic fluids	HS - HFDR - HFDU - HFDS

Special versions compatible with the use of different fluids are available.

FLOW

10 µm air filter	66.0 US gpm (250 l/min)
40 µm air filter	75.3 US gpm (285 l/min)

WEIGHT

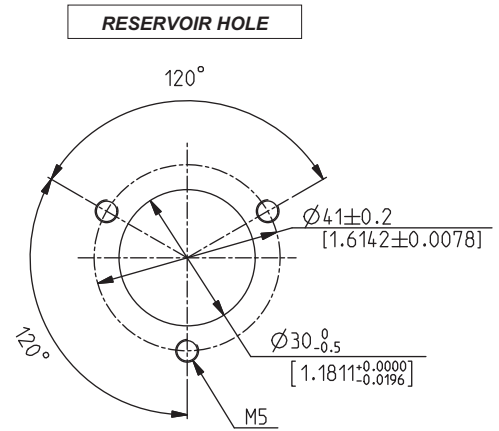
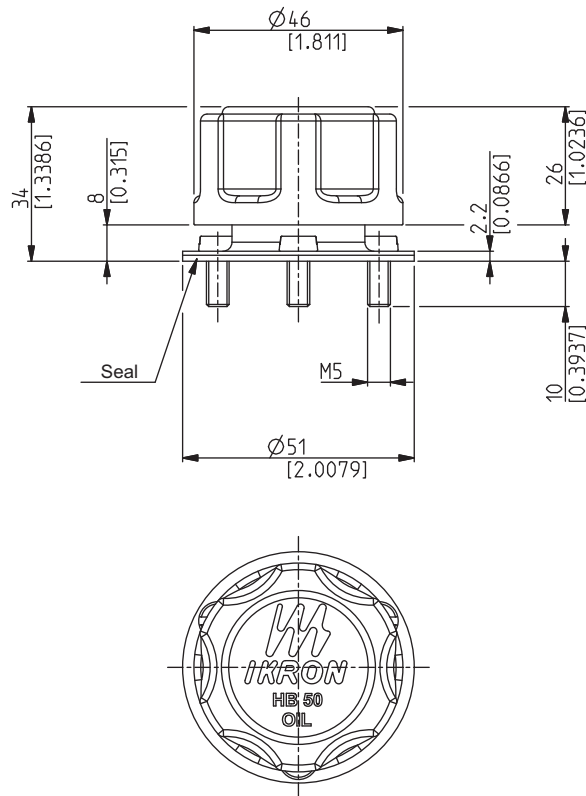
0.15 ÷ 0.20 lbs (0,07 ÷ 0,09 Kg)

WORKING TEMPERATURE

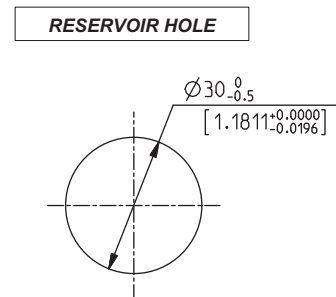
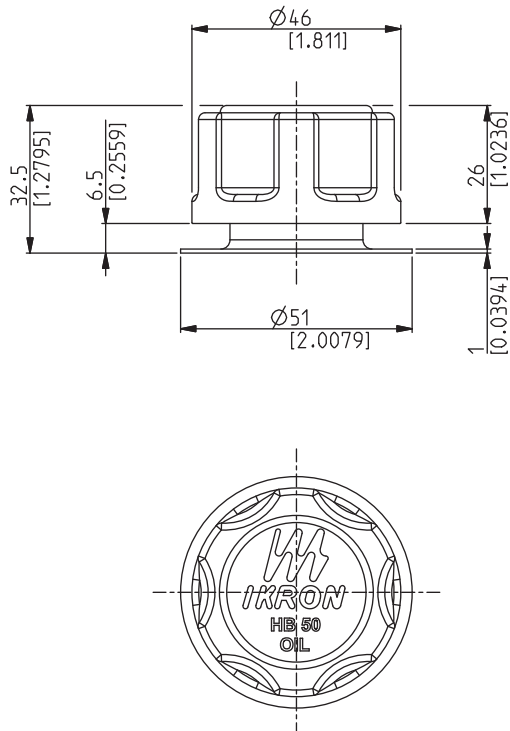
-22 ÷ 195 °F (-30 ÷ 90 °C)

01/09.2011

CAP DIMENSIONS - 05 FIXING WITH SCREWS



CAP DIMENSIONS - 10 FIXING TO BE WELDED

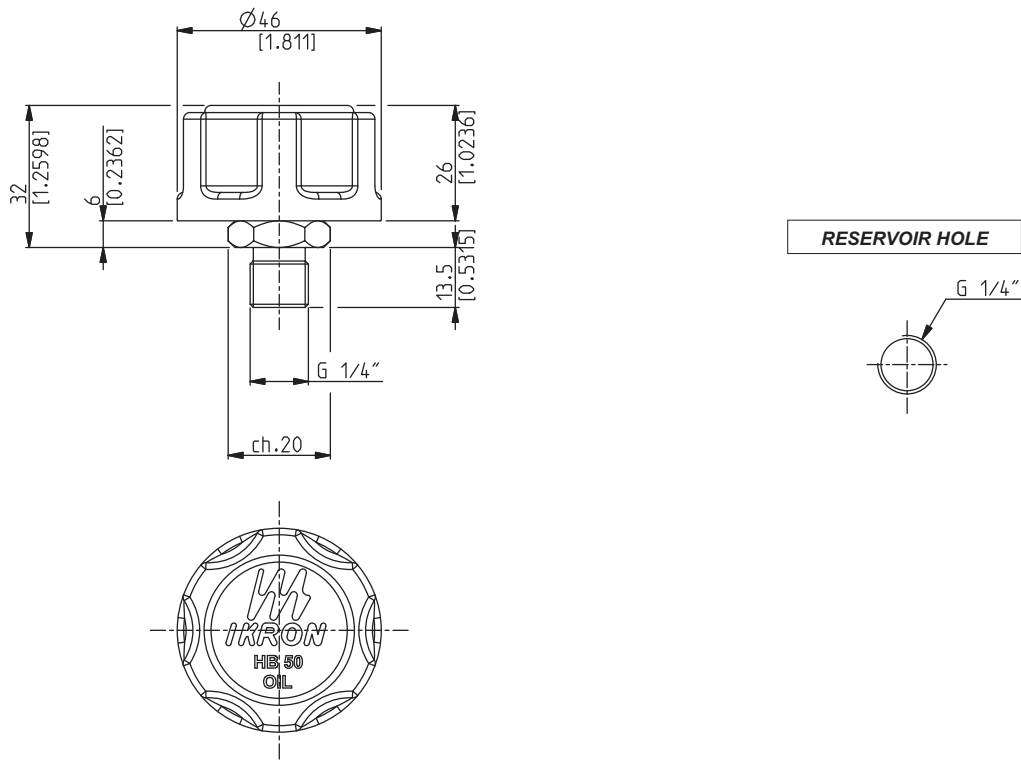


ICAT_024_001_HB50

ICAT_024_002_HB50

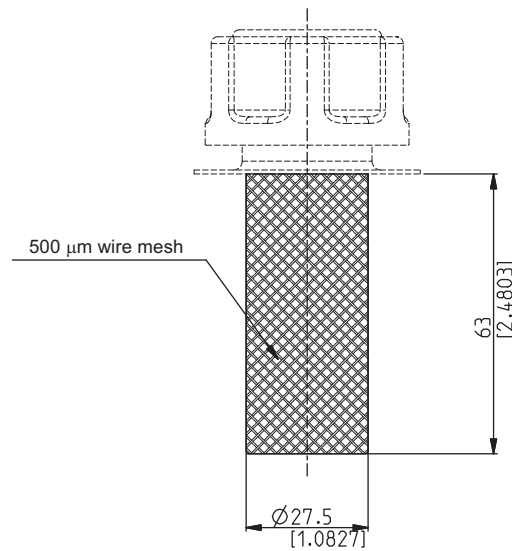
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CAP DIMENSIONS - GB 1/4" GAS MALE THREAD FIXING



ICAT_024_003_HB50

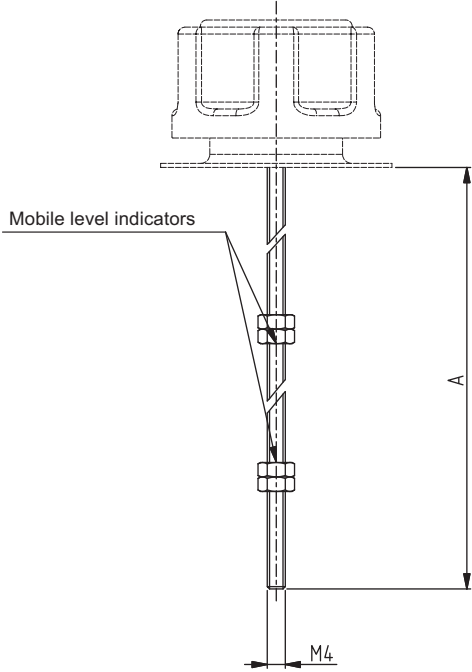
BASKET DIMENSIONS - G OPTION



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ICAT_024_004_HB50

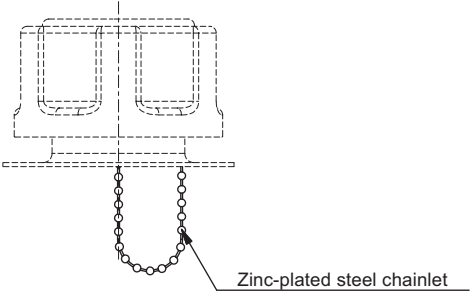
LEVEL DIPSTICK DIMENSIONS - **M / N / P** OPTIONS



Code	A	
	mm	in
M	200	7.8740
N	400	15.7480
P	600	23.6220

ICAT_024_005_HB50

CHAINLET - OPTION **2**



01/09.2011

ICAT_024_006_HB50

ASSEMBLY INSTRUCTIONS

HB50 caps provide 3 different connections:

- **Connection through a plane flange with fixing screws**

Put the seal between the fixing flange and the reservoir and then tighten the two components up with the three M5 screws. Complete the mounting by including the basket and by screwing the cap until it is locked.

- **Connection through a plane flange to be welded**

Put the fixing flange on the tank making sure it is axially lined up with the dedicated hole, then weld the circumference of the flange. Complete the mounting by including the basket and by screwing the cap until it is locked.

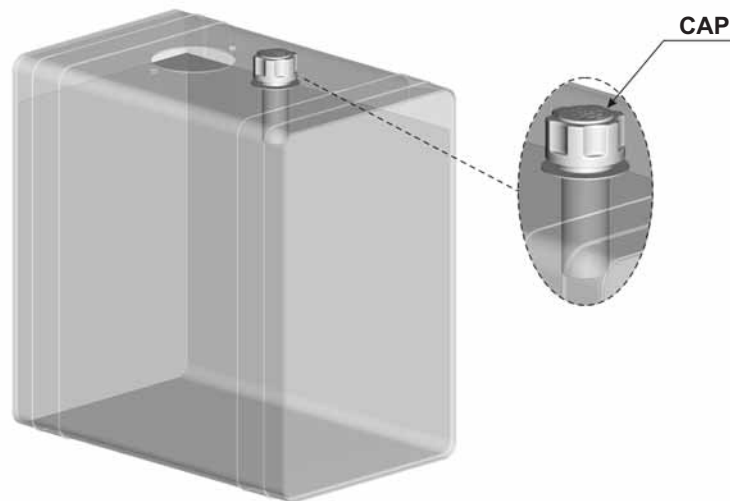
- **Connection through the 1/4" GAS male thread.**

Put a sufficient quantity of Teflon on the male thread of the cap and then tighten until it is locked.

Before connecting make sure there are no burrs in the HB50 cap mounting seat.

FILTER ELEMENT REPLACEMENT

In order to guarantee an efficient air exchange in the tank it is necessary to periodically replace the cap containing the filtering element by following the machine's instruction manual.



01/09.2011

HOW TO ORDER AN HB 50 FILLER CAP

1	2	3	4	5				
HB 50	-	A	-	05	-	G	-	1

1	Cap	CODE
	Filler cap	HB 50
2	Air breather	CODE
	Without	0
	With air breather and 10 [µm] filter	A
	With air breather and 40 [µm] filter	B
3	Fixing	CODE
	Flange with screws	05
	Flange to be welded	10
	1/4" GAS male thread	GB

4	Cap options	CODE
	Without	E
	Basket	G
	Level dipstick 7.8740 in (200 mm) long	M
	Level dipstick 15.7480 in (400 mm) long	N
	Level dipstick 23.6220 in (600 mm) long	P
	Custom level dipsticks with different heights are available on request.	
5	Options	CODE
	Without	1
	Internal chainlet	2

	Standard
	On request

HB 70 FILLER CAP WITH AIR BREATHER

TECHNICAL DATA

HB 70 filler caps are used for air filtration and filling the reservoir.

The cap's cover is made of chromium plated steel while all the other components are zinc-plated steel.

For the air filtration 10 and 40 µm built-in-media are available, in addition to a pressurization device option useful to ease the pump's suction and to avoid the creation of foam in the tank.

They can also feature:

- basket, to pre-filter the incoming oil avoiding macro-particle contamination,
- Level dipstick available in three different heights,
- Antisplash device to safeguard the filtering element.

The tank connection can be made through flanges with screws, welding flanges or directly with a 3/4" GAS male thread.

There are also two other options: the security element and a steel chainlet that keeps the cap connected with the flange beneath.

- Chromium-plated steel cap
- Pressurization valve
- Antisplash device

MATERIALS

Cap	Chromium-plated steel
Basket	Zinc-plated steel
Level dipstick	Zinc-plated steel
Antisplash	Nylon
Fixing flange with screws	Zinc-plated steel
Welding flange	Steel
Fixing extension	Zinc-plated steel
Chainlet	Zinc-plated steel
Security element arrangement	Zinc-plated steel
Seals	Buna
Filtering media	Polyurethane

FLUID COMPATIBILITY

According to ISO 2943 (Norm ISO 6743/4)

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

Special versions compatible with the use of different fluids are available.

FLOW

10 µm air filter	118.9 US gpm (450 l/min)
40 µm air filter	126.8 US gpm (480 l/min)

WEIGHT

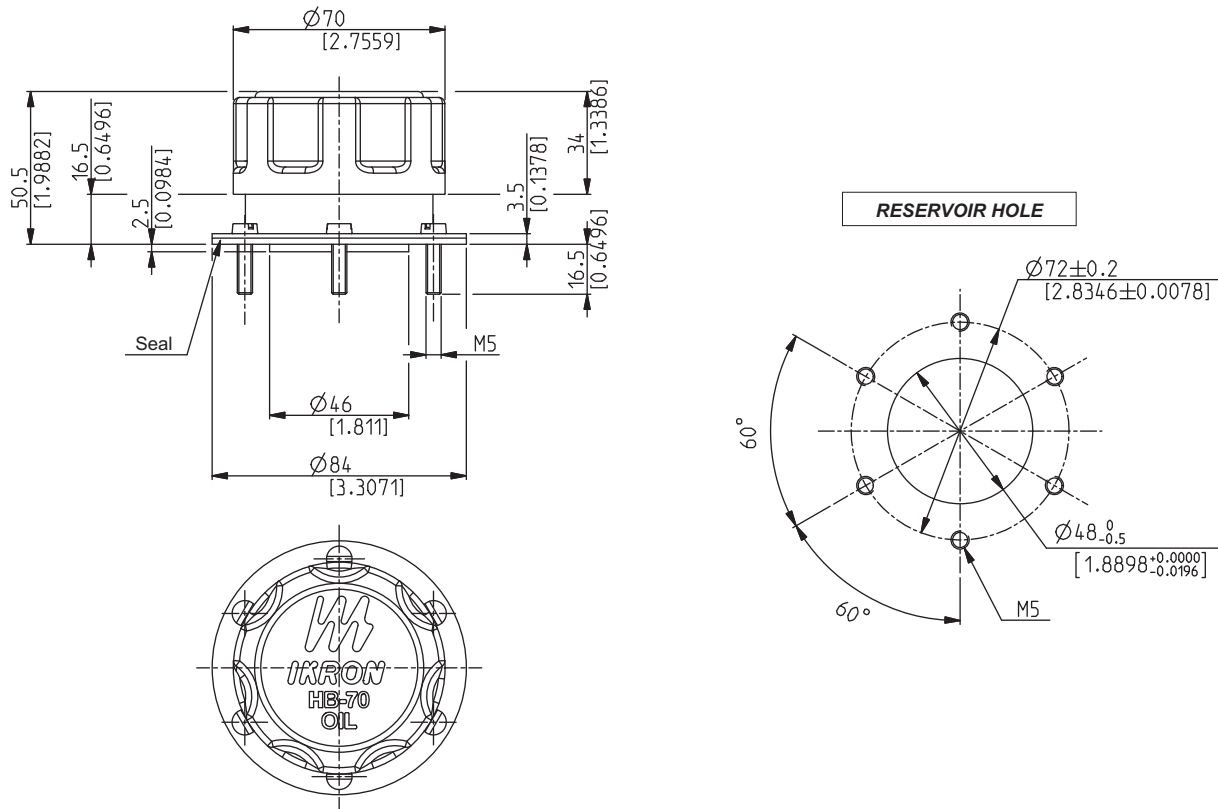
0,51 ÷ 1,43 lbs (0,23 ÷ 0,65 Kg)

WORKING TEMPERATURE

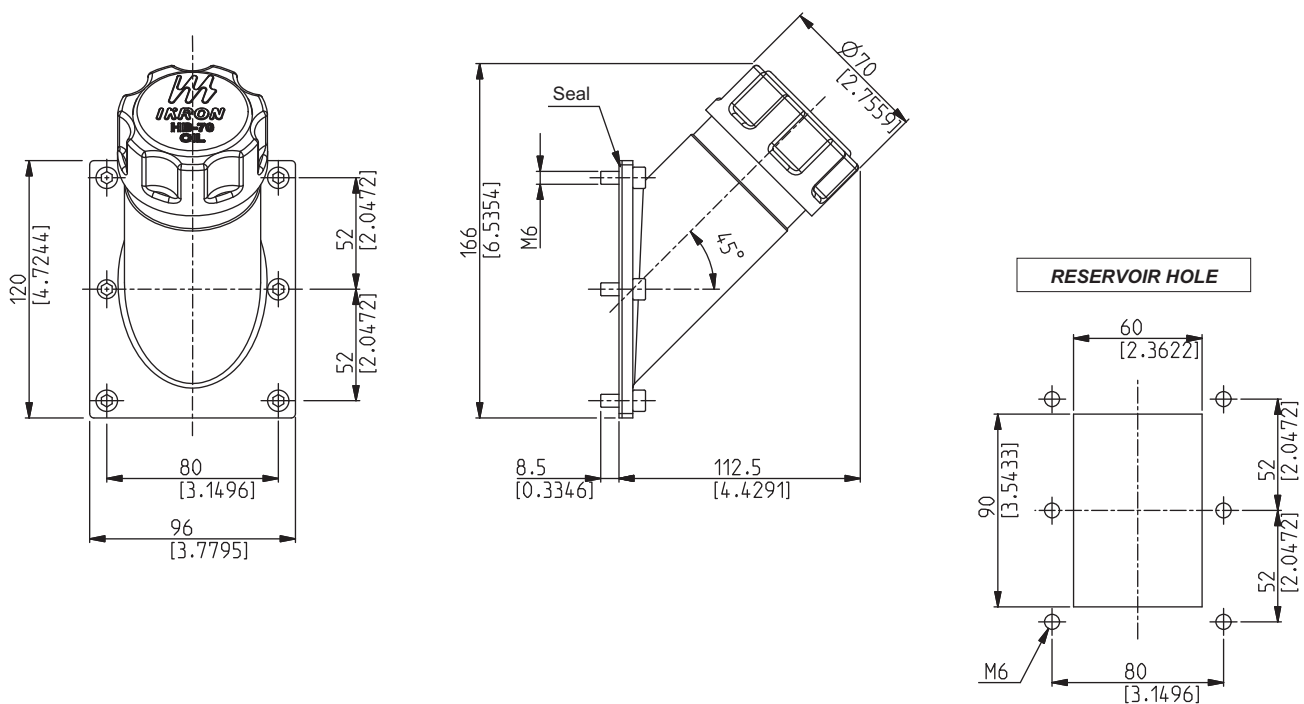
-22 ÷ 195 °F (-30 ÷ 90 °C)

01/09.2011

CAP DIMENSIONS - 05 FIXING WITH SCREWS



CAP DIMENSIONS - 08 FIXING WITH SCREWS

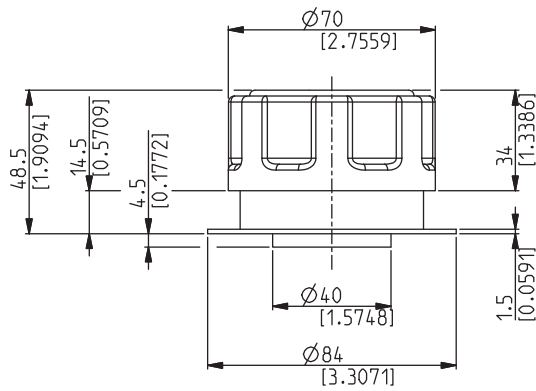


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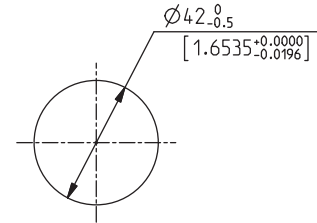
ICAT_024_007_HB70

ICAT_024_009_HB70

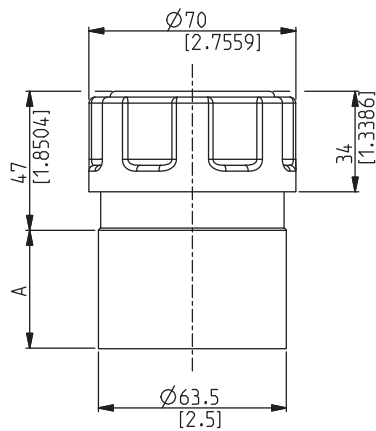
CAP DIMENSIONS - 10 FIXING TO BE WELDED



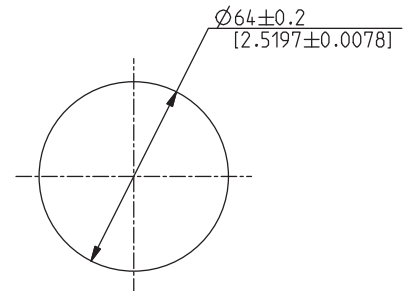
RESERVOIR HOLE



CAP DIMENSIONS - 15 / 20 / 25 / 30 FIXINGS TO BE WELDED



RESERVOIR HOLE



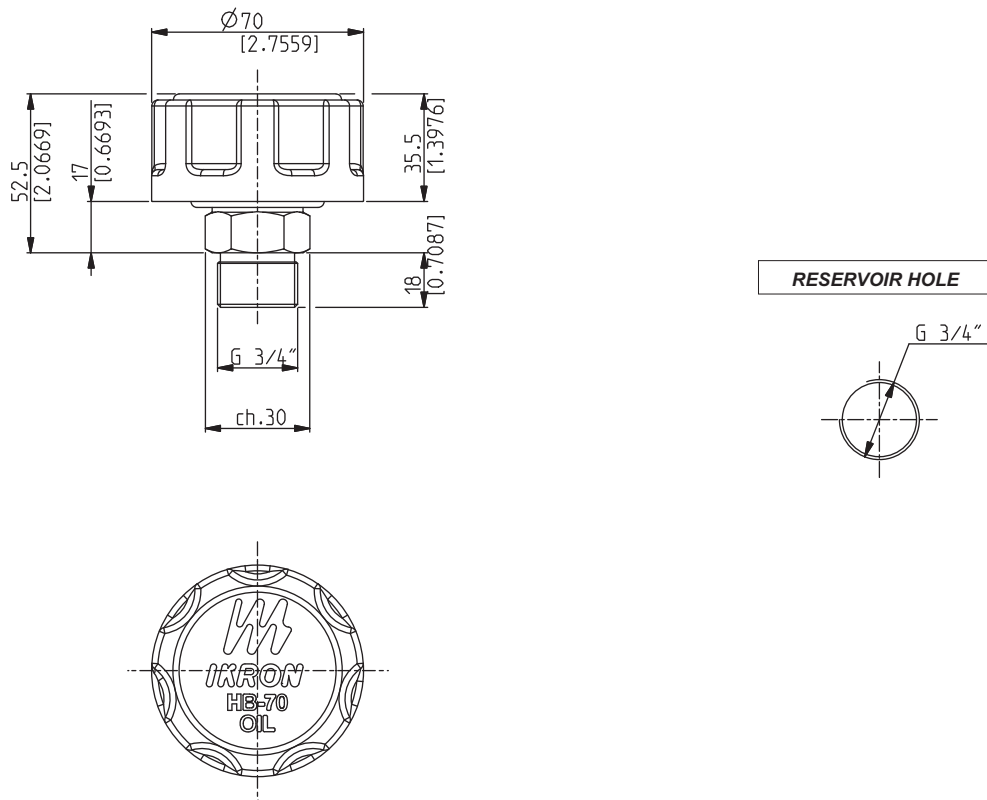
Code	A	
	mm	in
15	40	1.5748
20	65	2.5590
25	80	3.1496
30	135	5.3150

ICAT_024_008_HB70

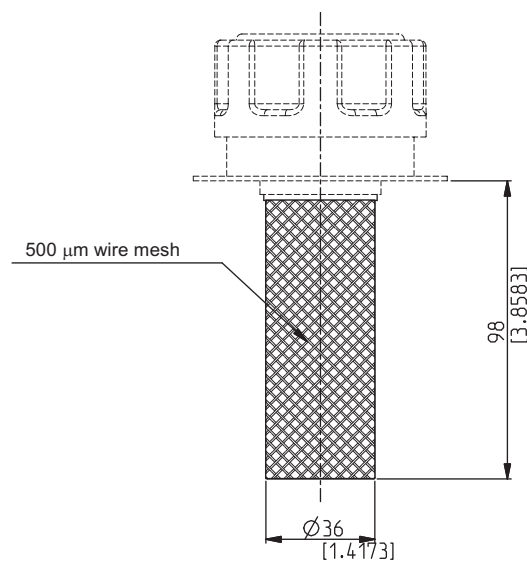
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ICAT_024_010_HB70

CAP DIMENSIONS - **GE** FIXING WITH 3/4" GAS MALE THREAD



BASKET DIMENSIONS - **G** OPTION

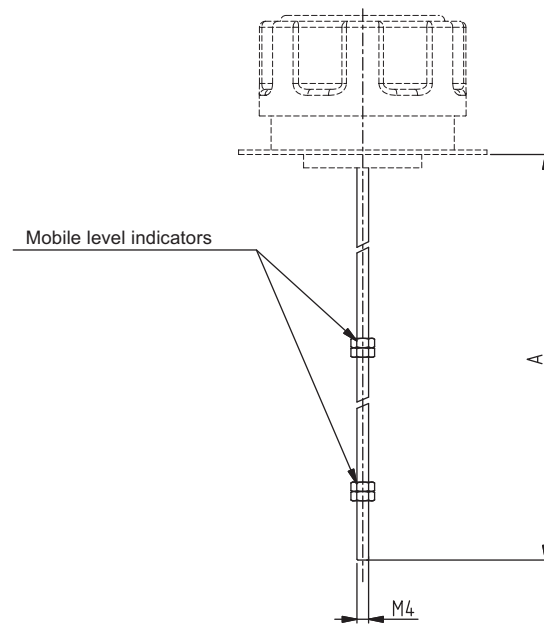


ICAT_024_011_HB70

ICAT_024_012_HB70

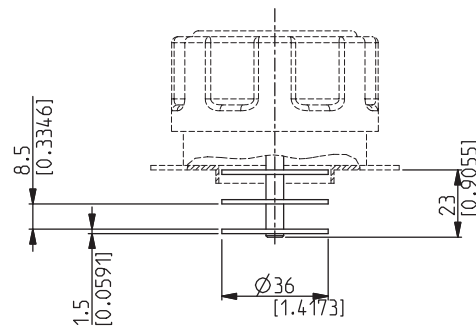
01/09.2011

LEVEL DIPSTICK DIMENSIONS - **M / N / P** OPTIONS



Code	A	
	mm	in
M	200	7.8740
N	400	15.7480
P	600	23.6220

ANTISPLASH DEVICE - **S** OPTION

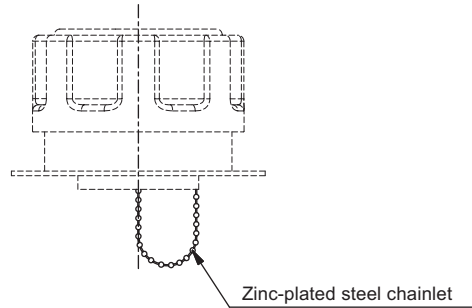


ICAT_024_013_HB70

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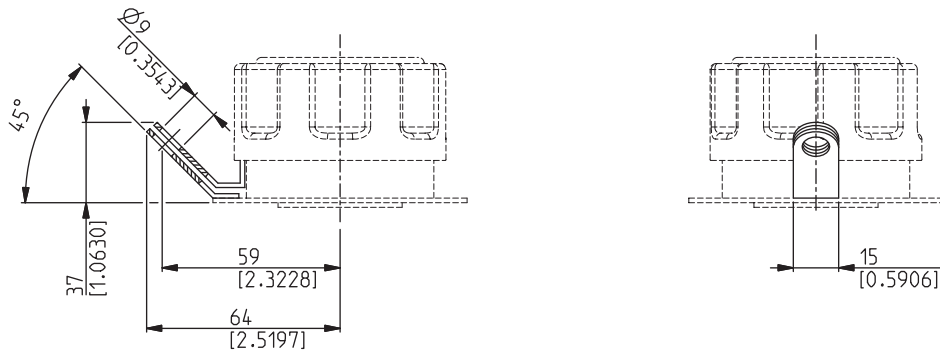
ICAT_024_014_HB70

CHAINLET - OPTION 2



ICAT_024_015_HB70

SECURITY ELEMENT ARRANGEMENT - OPTION 3



01/09.2011

ICAT_024_016_HB70

ASSEMBLY INSTRUCTIONS

HB 70 caps provide 5 different connections:

- **Connection through a plane flange with fixing screws**

Put the seal between the fixing flange and the reservoir and then tighten the two components up with the six M5 screws equipped. Complete the mounting by including the basket and by screwing the cap until it is locked.

- **Connection through a 45° flange with fixing screws**

First line the fixing flange up with the seal and then lock the two components to the tank using the six M5 screws. Complete the mounting by including the basket and by screwing the cap until it is locked.

- **Connection through a plane flange to be welded**

Put the fixing flange on the tank making sure it is axially lined up with the dedicated hole, then weld the circumference of the flange. Complete the mounting by including the basket and by screwing the cap until it is locked.

- **Connection through an extension to be welded**

Insert the extension in the dedicated seat of the tank and weld the entire circumference. Complete the mounting by including the basket and by screwing the cap until it is locked.

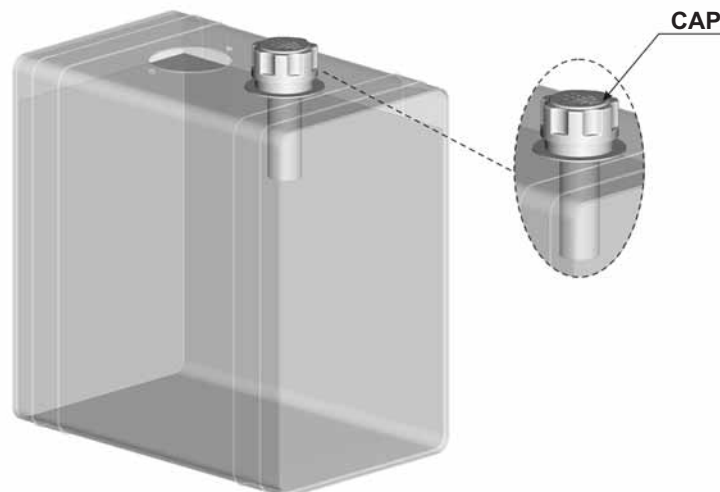
- **Connection through a 3/4" GAS male thread.**

Put a sufficient quantity of Teflon on the male thread of the cap and then start tightening until it is locked.

Before connecting make sure there are no burrs in the HB70 cap mounting seat.

FILTER ELEMENT REPLACEMENT

In order to guarantee an efficient air exchange in the tank it is necessary to periodically replace the cap containing the filtering element by following the machine's instruction manual.



HOW TO ORDER AN HB 70 FILLER CAP

1	2	3	4	5				
HB 70	-	A	-	05	-	G	-	1

1	Cap	CODE
	Filler cap	HB 70

2	Air breather	CODE
	Without	0
	With air breather and 10 [µm] filter	A
	With air breather and 40 [µm] filter	B
	With 0,4 bar pressurized breather and 10 [µm] filter	C
	With 0,4 bar pressurized breather and 40 [µm] filter	D

3	Fixing	CODE
	Flange with screws	05
	45° flange with screws	08
	Welding flange	10
	Extension to be welded 1.5748 in (40 mm) long	15
	Extension to be welded 2.5590 in (65 mm) long	20
	Extension to be welded 3.1496 in (80 mm) long	25
	Extension to be welded 5.3150 in (135 mm) long	30
	3/4" GAS male thread	GE

4	Cap options	CODE
	Without	E
	Basket	G
	Level dipstick 7.8740 in (200 mm) long	M
	Level dipstick 15.7480 in (400 mm) long	N
	Level dipstick 23.6220 in (600 mm) long	P
	Antisplash	S

Custom level dipsticks with different heights are available on request.

5	Options	CODE
	Without	1
	Internal chainlet	2
	Security element arrangement	3

	Standard
	Request

HB 110 FILLER CAP WITH AIR BREATHER

TECHNICAL DATA

HB 110 filler caps are used for air filtration and filling the reservoir.

These caps can filter air up to 369.8 US gpm (1400 l/min) and can have an antislash device, with small axial encumbrance and a reinforced fiberglass nylon-made housing.

Versions with level dipsticks, clogging indicators and outer antipollution devices are available.

- Small encumbrance
- Corrosion-proof
- Antislash device
- Antipollution device
- Level dipstick

MATERIALS

Cap	Reinforced nylon
Tank	Reinforced nylon
Basket	Nylon
Seal	Buna
Filtering media	Inorganic micro-fibre glass
	Cellulose

FLUIDS COMPATIBILITY

According to ISO 2943 (Norm ISO 6743/4)

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

Special versions compatible with the use of different fluids are available.

FLOW

3 µm absolute air filter	224.5 US gpm (850 l/min)
5 µm air filter	290.6 US gpm (1100 l/min)
10 µm air filter	369.8 US gpm (1400 l/min)

WEIGHT

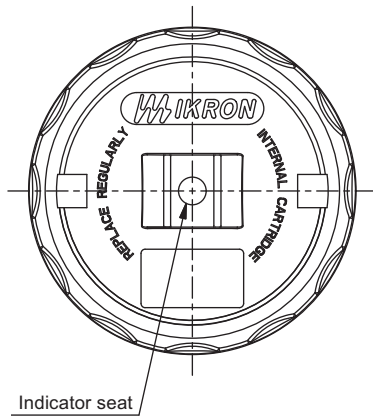
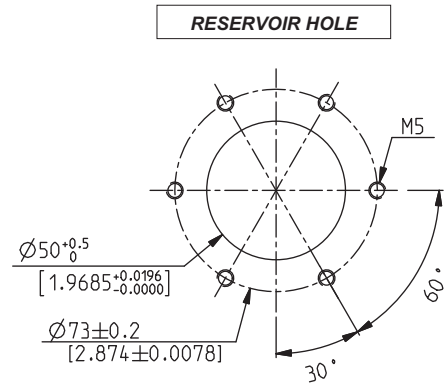
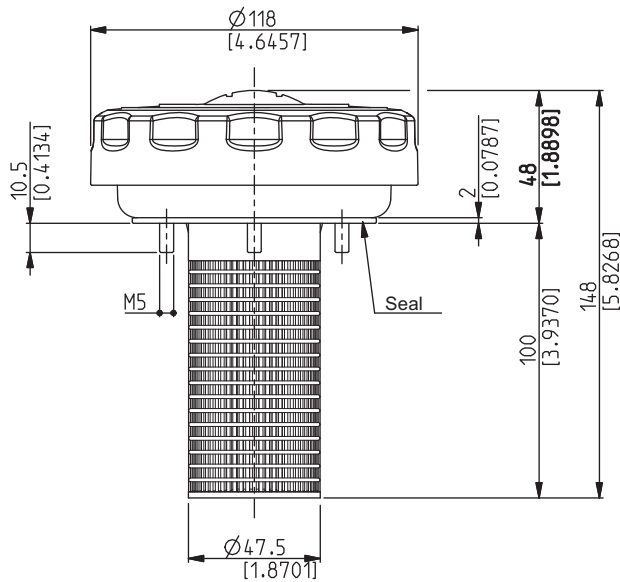
0.44 lbs (0,2 Kg)

WORKING TEMPERATURE

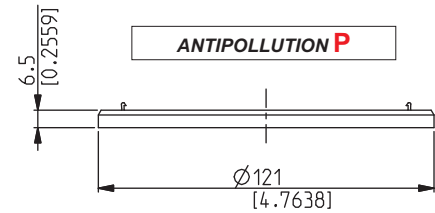
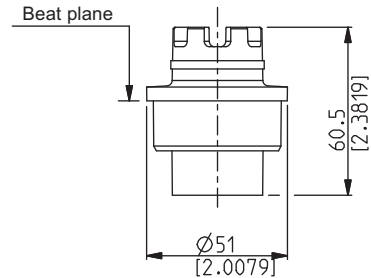
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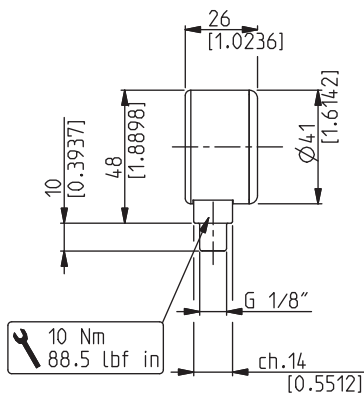
DIMENSIONS



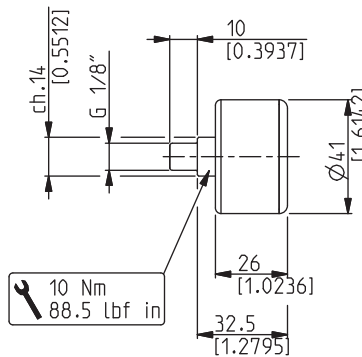
ANTISPLASH **A**



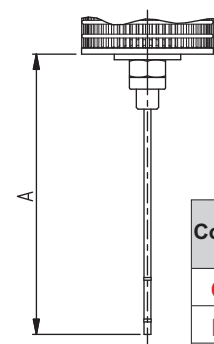
MANOMETER **M**



MANOMETER **N**



LEVEL DIPSTICKS **Q/R/S**



Code	A	
	mm	in
Q	100	3.9370
R	200	7.8740
S	400	15.7480

ASSEMBLY INSTRUCTIONS

HB 110 caps are contained in their own packaging.

When mounting please proceed as follows:

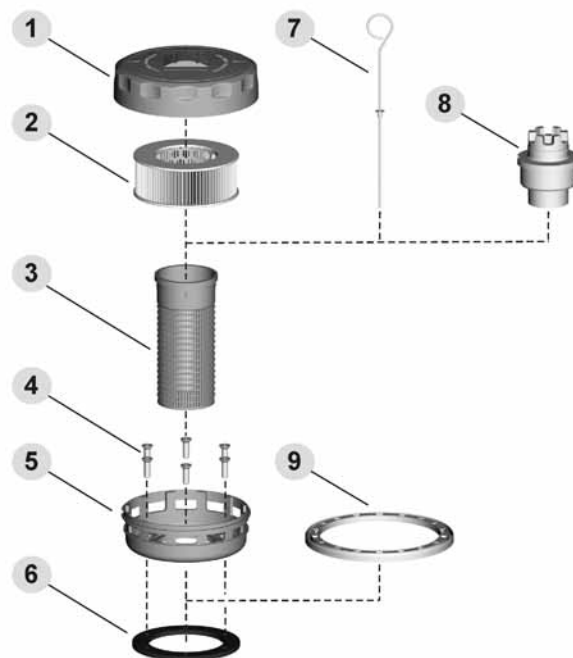
- Open the package and make sure all the components are there,
- Make sure there are no burrs in the cap seat,
- Unscrew the cover (1),
- Take off the filtering element (2) placed in the cap's tank (5),
- Put the tank (5) inside of the antipollution device (9) making sure it is locked on the lower border of the tank through the dedicated inserts,
- Put the basket (3) in the cap's tank (5) making sure it is locked through the dedicated inserts,
- Place the seal (6) in the tank positioning the fixing holes in the correct way,
- Position the tank (5) with its basket (3) on the seal (6) positioning the fixing holes in the correct way,
- Lock the cap's tank (5) to the reservoir using the 6 screws (4) provided,
- Fill the reservoir to the desired point,
- Thoroughly clean the tank (5) from oil,
- Insert the level dipstick (7) inside of the basket (3),
- Insert the antisplash device (8) inside of the basket (3) until reaching the beat of the Ø51mm (see page 16),
- Insert the element (2) inside of the tank centering it on the basket's neck (3),
- If there is an indicator screw it in the dedicated seat of the cover (1) using fluid Teflon.

FILTER ELEMENT REPLACEMENT

In order to guarantee an efficient air exchange in the tank it is necessary to periodically replace the cap containing the filtering element by following the machine's instructions manual or when the indicator indicates that the pressure is more than 0,2 bar.

Proceed as follows:

- Unscrew the cover (1),
- Take off the clogged element (2) inside of the cap's tank (5),
- Clean the cap's tank with care (5),
- Insert the new element (2) inside of the tank centering it on the basket's neck (3),
- Screw the cover (1) on the cap's tank (5) and tighten for 1/4 turn after the element makes in contact with it.



Pos.	Description
1	Cover
2	Filtering element
3	Basket
4	Fixing screws
5	Cap's tank
6	Seal
7	Level dipstick
8	Antisplash device
9	Antipollution device

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HOW TO ORDER AN HB 110 CAP

1	2	3	4	5	6	7						
HB 110	-	SP010	-	XN	-	G	-	O	-	S	-	Z

1	Cap	CODE
	Cap	HB 110

2	Degree of filtration	CODE
	Micro-fibre glass 3 [µm]	FG003
	Cellulose 5 [µm]	SP005
	Cellulose 10 [µm]	SP010

3	Indicators arranged	CODE
	Without	XN
	Arranged on the cover	XD

4	Indicators	CODE
	Without	G
	Rear manometer	M
	Radial manometer	N

5	Antisplash	CODE
	Without	O
	With Antisplash device	A

6	Antipollution	CODE
	Without	S
	With Antipollution device	P

7	Level dipstick	CODE
	Without	Z
	Level dipstick 3.9370 in (100 mm) long	Q
	Level dipstick 7.8740 in (200 mm) long	R
	Level dipstick 15.7480 in (400 mm) long	S

☒	Standard
☐	On request

HOW TO ORDER AN HEK 110 ELEMENT

1	2
HEK 110	SP010
-	

1	Element	CODE
	Element	HEK 110

2	Degree of filtration	CODE
	Micro-fibre glass 3 [µm]	FG003
	Cellulose 5 [µm]	SP005
	Cellulose 10 [µm]	SP010

☒	Standard
☐	On request

HB 120 FILLER CAP WITH AIR BREATHER

TECHNICAL DATA

HB 120 filler caps are used for air filtration and filling the reservoir.

These caps can filter air up to 475.5 US gpm (1800 l/m) and can have an antisplash device, with small axial encumbrance and a reinforced fiberglass nylon-made housing.

Versions with level dipsticks, clogging indicators and outer antipollution devices are available.

- Corrosion-proof
- Antisplash device
- Antipollution device
- Level dipsticks

MATERIALS

Cap	Reinforced nylon
Tank	Reinforced nylon
Basket	Nylon
Seal	Buna
Filtering media	Inorganic micro-fibre glass Cellulose

FLUIDS COMPATIBILITY

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

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

Special versions compatible with the use of different fluids are available.

FLOW

3 µm absolute air filter	290.6 US gpm (1100 l/min)
5 µm air filter	369.8 US gpm (1400 l/min)
10 µm air filter	475.5 US gpm (1800 l/min)

WEIGHT

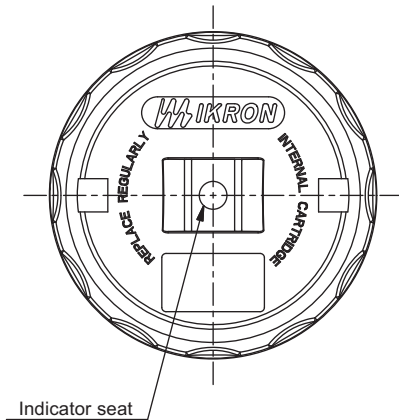
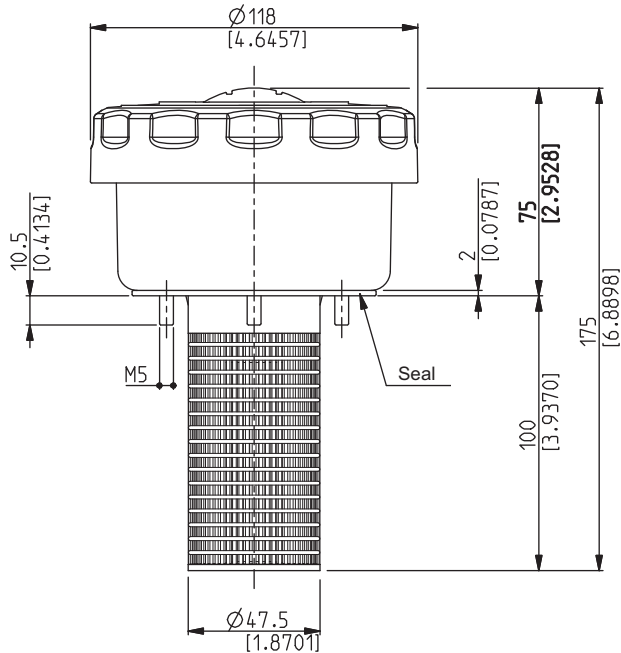
0.55 lbs (0,25 Kg)

WORKING TEMPERATURE

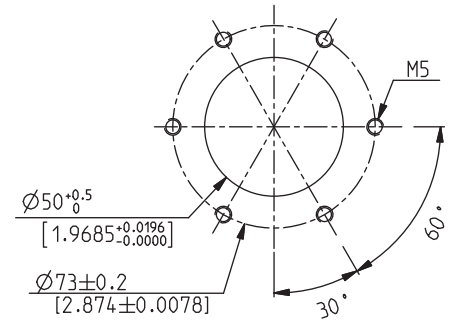
-22 ÷ 195 °F (-30 ÷ 90 °C)

01/09.2011

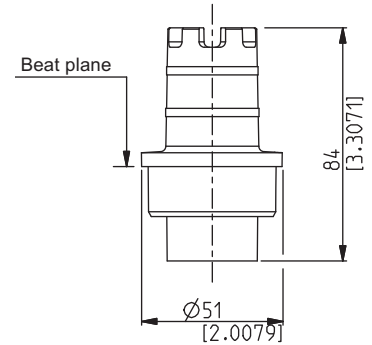
DIMENSIONS



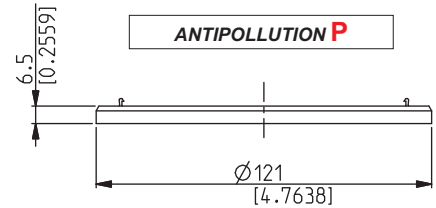
RESERVOIR HOLE



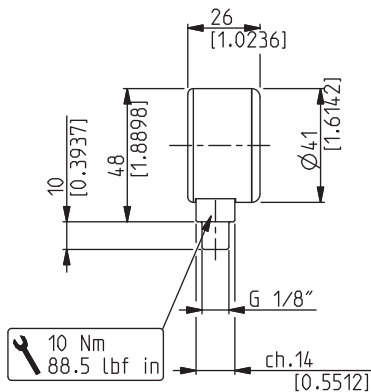
ANTISPLASH A



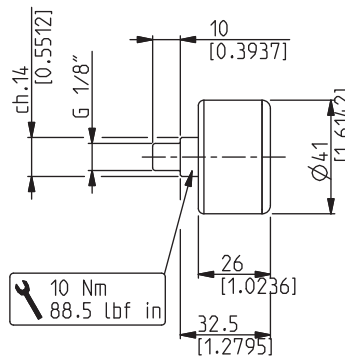
ANTIPOLLUTION P



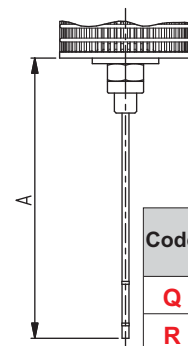
MANOMETER M



MANOMETER N



LEVEL DIPSTICKS Q/R/S



Code	A	
	mm	in
Q	100	3.9370
R	200	7.8740
S	400	15.7480

ASSEMBLY INSTRUCTIONS

HB 120 caps are contained in their own packaging.

When mounting please proceed as follows:

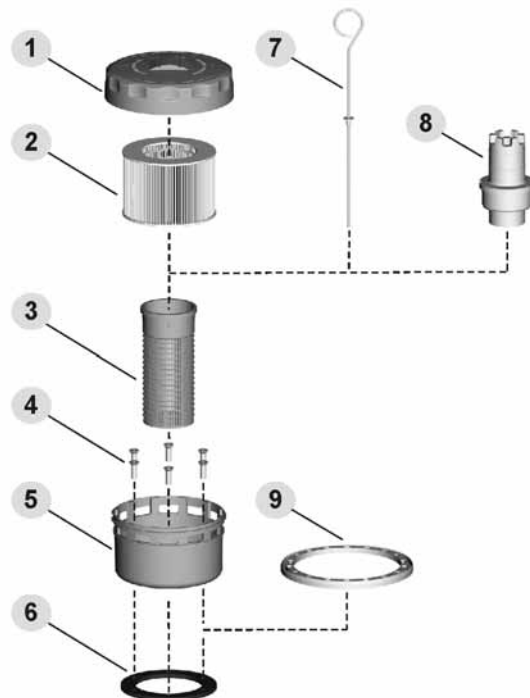
- Open the package and make sure all the components are there,
- Make sure there are no burrs in the cap seat,
- Unscrew the cover (1),
- Take off the filtering element (2) placed in the cap's tank (5),
- Put the tank (5) inside of the antipollution device (9) making sure it is locked on the lower border of the tank through the dedicated inserts,
- Put the basket (3) in the cap's tank (5) making sure it is locked through the dedicated inserts,
- Place the seal (6) in the tank positioning the fixing holes in the correct way,
- Position the tank (5) with its basket (3) on the seal (6) positioning the fixing holes in the correct way,
- Lock the cap's tank (5) to the reservoir using the 6 screws (4) provided,
- Fill the reservoir to the desired point,
- Thoroughly clean the tank (5) from oil,
- Insert the level dipstick (7) inside of the basket (3),
- Insert the antisplash device (8) inside of the basket (3) until reaching the beat of the Ø51mm (see page 16),
- Insert the element (2) inside of the tank centering it on the basket's neck (3),
- If there is an indicator screw it in the dedicated seat of the cover (1) using fluid Teflon.

FILTER ELEMENT REPLACEMENT

In order to guarantee an efficient air exchange in the tank it is necessary to periodically replace the cap containing the filtering element by following the machine's instructions manual or when the indicator indicates that the pressure is more than 0,2 bar.

Proceed as follows:

- Unscrew the cover (1),
- Take off the clogged element (2) inside of the cap's tank (5),
- Clean the cap's tank with care (5),
- Insert the new element (2) inside of the tank centering it on the basket's neck (3),
- Screw the cover (1) on the cap's tank (5) and tighten for 1/4 turn after the element makes in contact with it.



Pos.	Description
1	Cover
2	Filtering element
3	Basket
4	Fixing screws
5	Cap's tank
6	Seal
7	Level dipstick
8	Antisplash device
9	Antipollution device

01/09.2011

HOW TO ORDER AN HB 120 CAP

1	2	3	4	5	6	7						
HB 120	-	SP010	-	XN	-	G	-	O	-	S	-	Z

1	Cap	CODE
	Cap	HB 120
2	Degree of filtration	CODE
	Micro-fibre glass 3 [µm]	FG003
	Cellulose 5 [µm]	SP005
	Cellulose 10 [µm]	SP010
3	Indicators arranged	CODE
	Without	XN
	Arranged on the cover	XD

4	Indicators	CODE
	Without	G
	Rear manometer	M
	Radial manometer	N

5	Antisplash	CODE
	Without	O
	With Antisplash device	A

6	Antipollution	CODE
	Without	S
	With Antipollution device	P

7	Level dipstick	CODE
	Without	Z
	Level dipstick 3.9370 in (100 mm) long	Q
	Level dipstick 7.8740 in (200 mm) long	R
	Level dipstick 15.7480 in (400 mm) long	S

☒	Standard
☐	On request

HOW TO ORDER AN HEK 120 ELEMENT

1	2
HEK 120	SP010
-	

1	Element	CODE
	Element	HEK 120
2	Degree of filtration	CODE
	Micro-fibre glass 3 [µm]	FG003
	Cellulose 5 [µm]	SP005
	Cellulose 10 [µm]	SP010

☒	Standard
☐	On request

AF 105 AIR BREATHER

TECHNICAL DATA

AF 105 air breathers are used for air filtration that is entering the tank from the outside to control the fluid contamination level.

Connection to the tank is made of zinc-plated steel while the protective cloche is made of painted steel with high resistance to weather conditions.

- Fast connection to the tank
- Filtering element easy to replace

MATERIALS

Cloche	Painted steel
Tank connection	Zinc-plated steel
End cap	Zinc-plated steel
Seals	Buna
Filtering media	Cellulose

FLOW

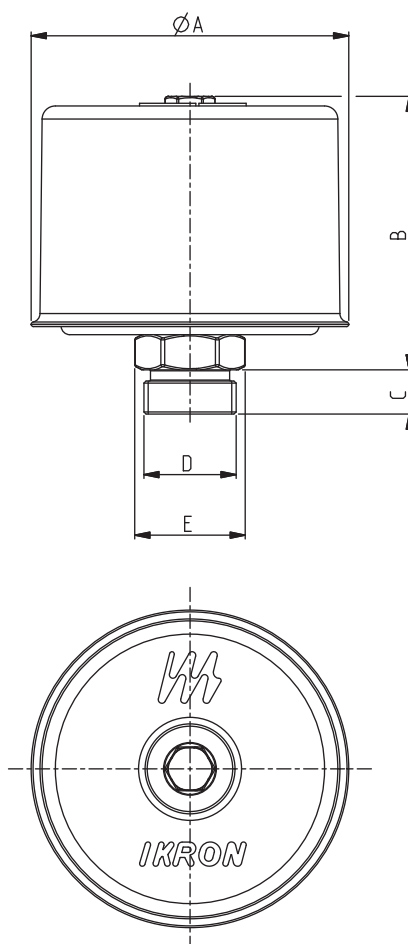
Maximum flow	264.2 US gpm (1000 l/min)
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WORKING TEMPERATURE

-22 ÷ 195 °F (-30 ÷ 90 °C)

01/09.2011

DIMENSIONS



ICAT_024_019_AF105

Filter type	Weight	Ø A	B	C	D			E	Replacement element
	Kg(lbs)	mm(in)	mm(in)	mm(in)	GAS (BSPP)	NPT	Metric	mm(in)	
AF 105-10	0,11 (0.24)				G 1/4	1/4 NPT	M 12x1,5	ch.14 (0.5512)	HEK 105-10
	0,13 (0.29)	52 (2.0472)	45 (1.7717)	9 (0.3543)	G 3/8	3/8 NPT	M 18x1,5	ch.19 (0.7480)	
	0,17 (0.37)				G 1/2	1/2 NPT	M 22x1,5	ch.24 (0.9449)	
AF 105-20	0,27 (0.59)	72 (2.8346)	62 (2.4409)	10 (0.3937)	G 1/2	1/2 NPT	M 22x1,5	ch.22 (0.8661)	HEK 105-20
	0,30 (0.66)				G 3/4	3/4 NPT	M 27x2	ch.34 (1.3386)	
AF 105-30	0,45 (0.99)	108 (4.2520)	78 (3.0709)	15 (0.5906)	G 1	1 NPT	M 33 x2	ch.34 (1.3386)	HEK 105-30

FLOWS

Filter	Degree of filtration		
	SP005	SP010	SP040
	Flow		
	US gpm (l/min)		
AF 105-10	26.4 (100)	42.3 (160)	52.8 (200)
AF 105-20	92.5 (350)	105.7 (400)	132.1 (500)
AF 105-30	184.9 (700)	224.5 (850)	264.1 (1000)

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ASSEMBLY INSTRUCTIONS

AF 105 air breathers get connected to the tank by screwing them into a dedicated seat. Make sure there are no burrs. Put a sufficient quantity of Teflon on the male thread of the cap and then tighten until it is locked.

Tightening torques are as follows:

G 1/4 = 133 lbf in (15 Nm)

G 3/8 = 133 lbf in (15 Nm)

G 1/2 = 177 lbf in (20 Nm)

G 3/4 = 266 lbf in (30 Nm)

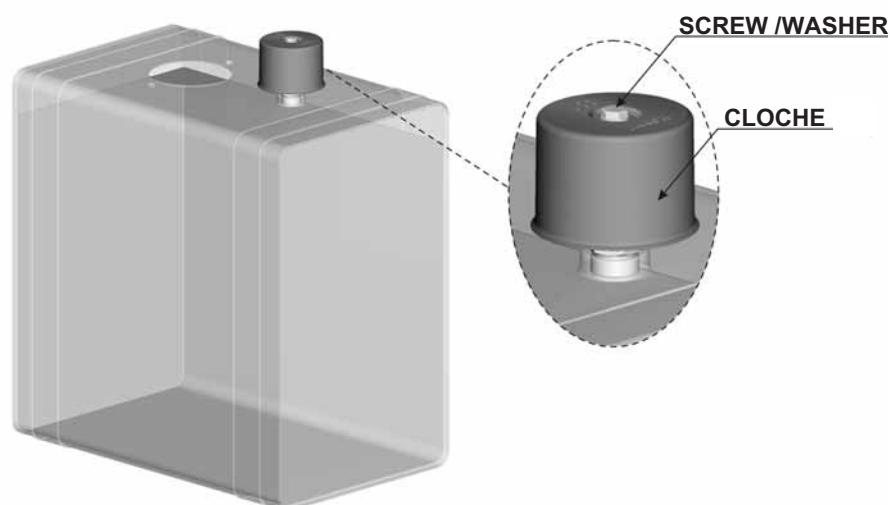
G 1 = 442 lbf in (50 Nm)

FILTER ELEMENT REPLACEMENT

In order to guarantee an efficient air exchange in the tank it is necessary to periodically replace the cap containing the filtering element by following the machine's instructions manual.

Proceed as follows:

- Unscrew the upper screw;
- Take off the screw and the washer;
- Take off the cloche;
- Take off the clogged element;
- Insert the new element;
- Mount the cloche;
- Put the washer and the screw in the dedicated seat and then tighten to a torque of 44 lbf in (5 Nm).



01/09.2011

HOW TO ORDER AN AF 105 BREATHER

		1		2		3
AF 105	-	20	-	GD	-	SP010

1	Filter type	CODE
	See table on page 24	AF 105-..

2	Thread connection	CODE
---	-------------------	------

GAS thread (BSPP)

G 1/4	GB
G 3/8	GC
G 1/2	GD
G 3/4	GE
G 1	GF

NPT thread

1/4 NPT	NB
3/8 NPT	NC
1/2 NPT	ND
3/4 NPT	NE
1 NPT	NF

Metric thread

M 12x1,5	TB
M 18x1,5	TE
M 22x1,5	TG
M 27x1,5	TM
M 33x1,5	TP

3	Degree of filtration	CODE
5	[µm] Cellulose	SP005
10	[µm] Cellulose	SP010
40	[µm] Cellulose	SP040

	Standard
	On request

HOW TO ORDER AN HEK 105 ELEMENT

	1		2
HEK 105	-	SP010	

1	Element	CODE
	See table on page 24	HEK 105-..

2	Degree of filtration	CODE
	Cellulose 5 [µm]	SP005
	Cellulose 10 [µm]	SP010
	Cellulose 40 [µm]	SP040

	Standard
	On request

01/09.2011

AF 106 AIR FILTER

TECHNICAL DATA

AF 106 air filters are strongly recommended for hydraulic systems with high air exchange and for very polluted environments.

In addition to cellulose elements 3µm microfiber elements are available with high retention efficiency that are highly effective against fluid contamination.

The air breathers are connected to the tank through flanges with screws or with welding tang.

- Absolute filtration
- High retention efficiency
- Maximum flow 792.5 US gpm (3000 l/min)

MATERIALS

Flange with screws	Zinc-plated steel
Welding tang	Steel - Zinc-plated steel
Seals	Buna
Filtering media	Inorganic micro-fibre glass Cellulose

FLUIDS COMPATIBILITY

According to ISO 2943 (Norm ISO 6743/4)

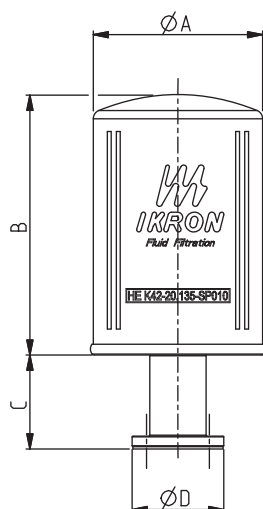
Mineral oils	HH - HL - HM - HR - HV - HG
Water emulsions	HFAE - HFAS
Glycol water	HFC
Synthetic fluids	HS - HFDR - HFDU - HFDS

WORKING TEMPERATURE

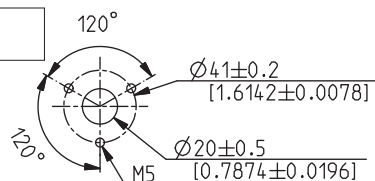
-22 ÷ 195 °F (-30 ÷ 90 °C)

01/09.2011

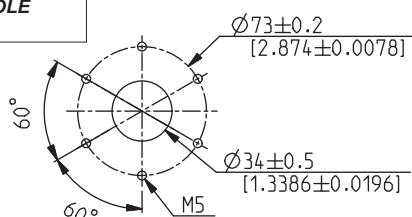
AIR FILTER DIMENSIONS - V FIXING



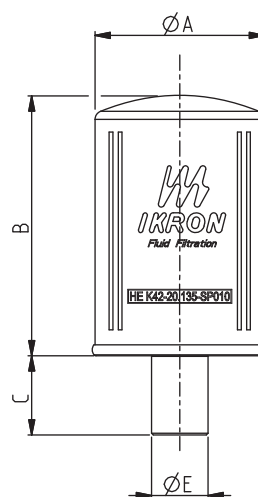
RESERVOIR HOLE
AF 106-20



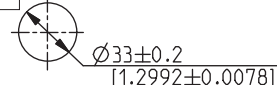
RESERVOIR HOLE
AF 106-30



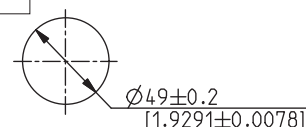
AIR FILTER DIMENSIONS - S FIXING



RESERVOIR HOLE
AF 106-20



RESERVOIR HOLE
AF 106-30



Filter type	Weight	Ø A	B	C	Ø D	Ø E	Replacement element
	Kg(lbs)	mm(in)	mm(in)	mm(in)	mm(in)	mm(in)	
AF 106-20.135	0,85 (1.87)	96 (3.7795)	148 (5.8268)	54 (2.1260)	52 (2.0472)	32 (1.2598)	HEK 42-20.135
AF 106-20.180	1,10 (2.42)		210 (8.2677)				HEK 42-20.180
AF 106-30.155	1,80 (3.97)	126 (4.9606)	180 (7.0866)		83 (3.2677)	48 (1.8898)	HEK 42-30.155
AF 106-30.210	2,10 (4.63)		228 (8.9764)				HEK 42-30.210

FLOWS

Filter type	Degree of filtration			
	FG003	FG006	FG010	SP010
	Flow			
	US gpm (l/min)			
AF 106-20.135	264.1 (1000)	317.0 (1200)	369.8 (1400)	396.2 (1500)
AF 106-20.180	317.0 (1200)	383.0 (1450)	449.1 (1700)	475.5 (1800)
AF 106-30.155	475.5 (1800)	581.2 (2200)	660.4 (2500)	713.3 (2700)
AF 106-30.210	528.3 (2000)	634.0 (2400)	739.7 (2800)	792.5 (3000)

ASSEMBLY INSTRUCTIONS

AF 106 air filters provide 2 connections:

- **Connection through a plane flange with fixing screws**

Put the seal between the fixing flange and the reservoir and then tighten the two components with the screws equipped.

Complete the mounting by screwing the spin-on element to the male thread on the flange.

Once you make contact with the o-ring tighten the spin-on element 1/4 turn (AF106-20) or 1/8 turn (AF106-30).

- **Connection through a welding tang**

Insert the tang in the dedicated seat of the tank and look for the perfect uprightness, then start welding for the whole tang's circumference.

Complete the mounting by screwing the spin-on element to the male thread on the flange.

Once you reach contact with the o-ring tighten the spin-on element for 1/4 turn (AF106-20) or 1/8 turn (AF106-30).

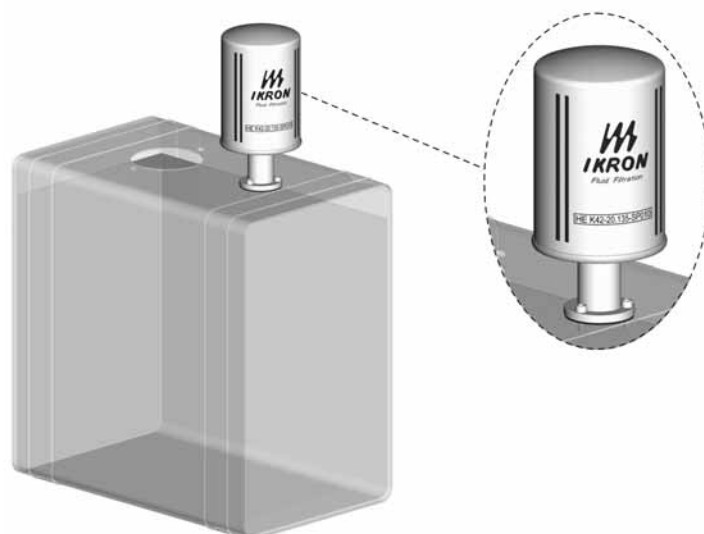
Before making any connections please make sure there are no burrs in the AF 106 mounting seats.

FILTER ELEMENT REPLACEMENT

In order to guarantee an efficient air exchange in the tank it is necessary to periodically replace the spin-on element containing the filtering element by following the machine's instructions manual.

Proceed as follows:

- Unscrew the clogged element;
- Screw the new element until it makes contact with the o-ring;
- Tighten 1/4 turn (AF 106-20) or 1/8 turn (AF 106-30).



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HOW TO ORDER AN AF 106 FILTER

	1		2		3
AF 106	-	20.135	-	SP010	-
					V

1	Filter type	CODE
	See table on page 28	AF 106-..
2	Degree of filtration	CODE
	Micro-fibre glass 3 [µm]	FG003
	Micro-fibre glass 6 [µm]	FG006
	Micro-fibre glass 10 [µm]	FG010
	Cellulose 10 [µm]	SP010
3	Fixing	CODE
	Flange with screws	V
	Welding tang	S

☒	Standard
☐	On request

HOW TO ORDER AN HEK 42 ELEMENT

1		2
HEK 42-20.135	-	SP010

1	Element	CODE
	See table on page 28	HEK 42-..
2	Filtration degree	CODE
	Micro-fibre glass 3 [µm]	FG003
	Micro-fibre glass 6 [µm]	FG006
	Micro-fibre glass 10 [µm]	FG010
	Cellulose 10 [µm]	SP010

☒	Standard
☐	On request

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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

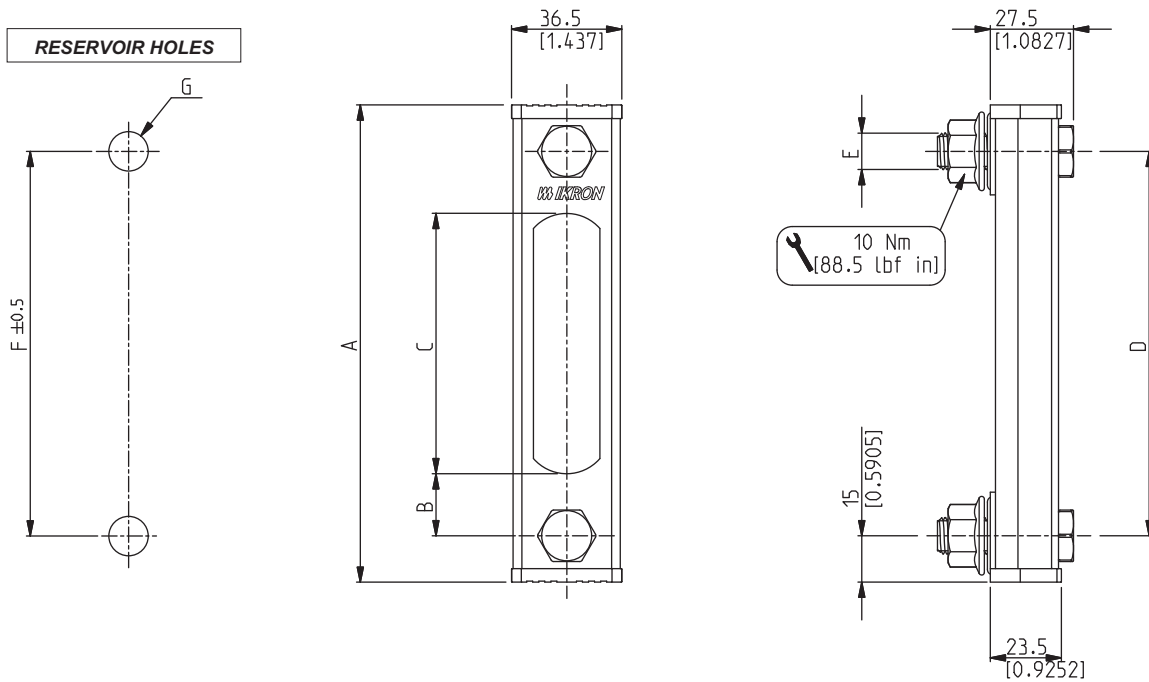
-22 ÷ 195 °F (-30 ÷ 90 °C)	
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THERMOMETER RANGE

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

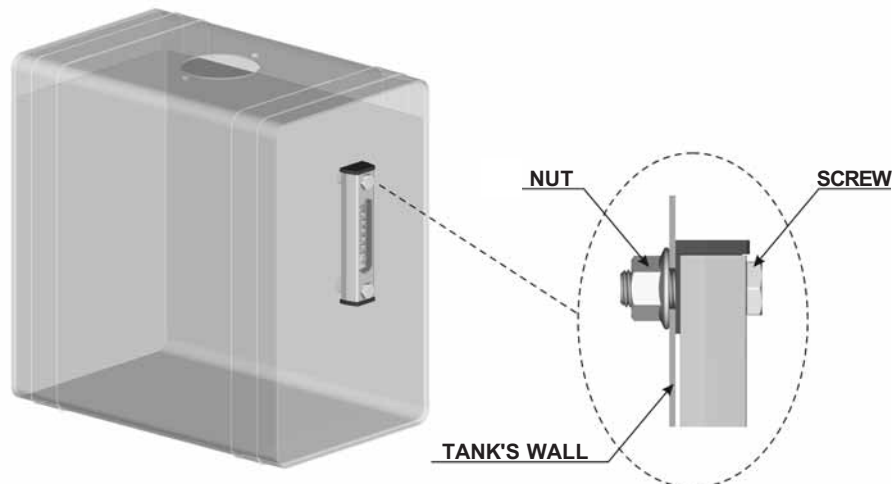


ICAT_024_021_HL91

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

		1		2		3		4
HL 91	-	10	-	T1	-	T	-	B

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

2	Fixing screws	CODE
	M 10	T1
	M 12	T2

3	Thermometer	CODE
	Without	N
	With thermometer	T

4	Seals	CODE
	Buna	B
	Viton	V

☐ Standard
☐ On request

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

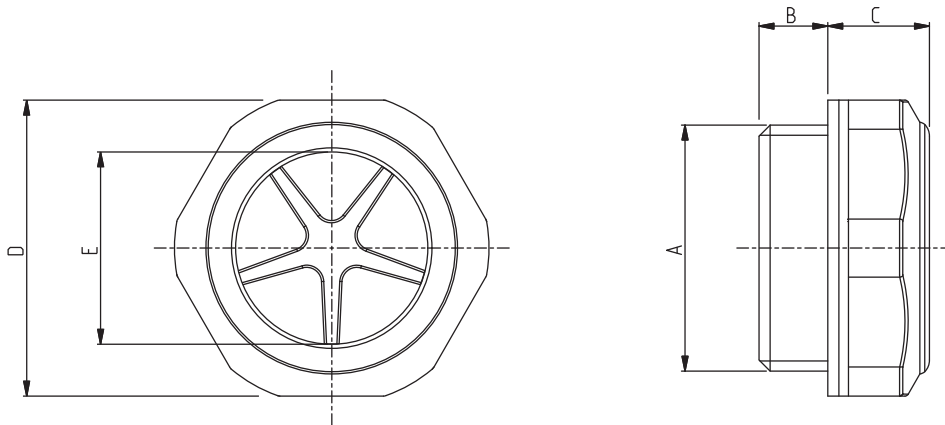
Maximum working pressure	145 psi (10 bar)
--------------------------	------------------

WORKING TEMPERATURE

-22 ÷ 195 °F (-30 ÷ 90 °C)

01/09.2011

DIMENSIONS

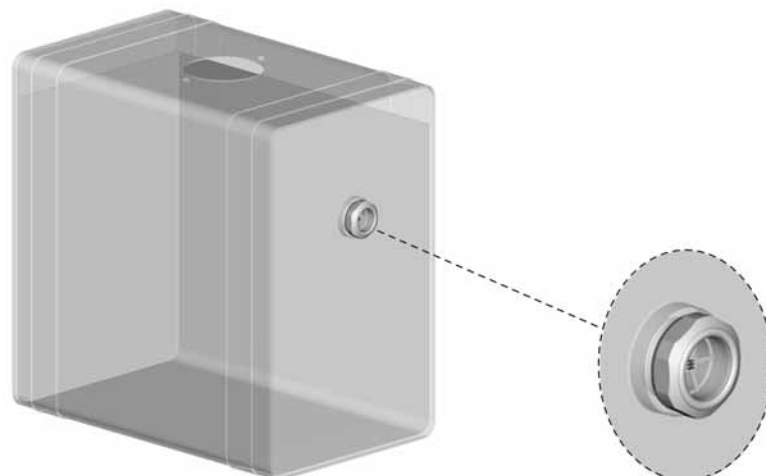


ICAT_024_022_HB02

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)
HB 02-GB	0,006 (0.013)	G 1/4	6 (0.2362)	11 (0.4331)	18 (0.7087)	11 (0.4331)	15 (133)
HB 02-GC	0,010 (0.022)	G 3/8	7,5 (0.2953)	11,5 (0.4528)	22 (0.8661)	13 (0.5118)	15 (133)
HB 02-GD	0,013 (0.029)	G 1/2	7,5 (0.2953)	11,5 (0.4528)	27 (1.0630)	16 (0.6299)	20 (177)
HB 02-GE	0,020 (0.044)	G 3/4	10,5 (0.4134)	10,5 (0.4134)	32 (1.2598)	20 (0.7874)	30 (265)
HB 02-GF	0,032 (0.070)	G 1	9,5 (0.3740)	12,5 (0.4921)	40 (1.5748)	26 (1.0236)	50 (442)
HB 02-GG	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

HB 02

-

GF

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

☐ On request

01/09.2011

36

002

ICAT024-008

Building &
construction

Agriculture

Truck
Market

Material
Handling

Industrial



Full range of filters
for all hydraulic circuits

Suction filters

HF 410
HF 412
HF 431
HF 434
HF 437

Tank mounted return line filters

HF 502
HF 508
HF 547
HF 554
HF 570
HF 575
HF 578

In line filters Spin-On

HF 620
HF 625
HF 650

In line medium and high pressure filters

HF 690
HF 705
HF 710
HF 725
HF 735
HF 745
HF 760
HF 761

Accessories

Filler breathers
Air filters
Level and temperature gauges
Pressure gauges
Pressure/vacuum gauges
Clogging indicators



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